

SEPTEMBER 1954

# AMERICAN ARTISAN

WARM AIR HEATING  
RESIDENTIAL AIR CONDITIONING  
SHEET METAL CONTRACTING



HOW SHEET METAL shops  
save time ..... 56

VENT HEATING equipment  
properly ..... 63

WHICH REFRIGERANTS for  
home cooling? ..... 74

COMPLETE contents of this  
issue ..... 4

HEATING, COOLING mailings get good results  
for dealer with special prospect file ..... 52

# Air Control No. 180 BASEBOARD DIFFUSER

## MOST COPIED OF THEM ALL!

THE DEFINITE PREFERENCE for Air Control's No. 180 Baseboard Perimeter Diffuser is a result of its proven better design. Large free-area and efficient air distribution assure peak performance in both heating and cooling installations.

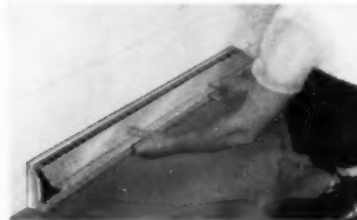
Installation is easier and faster with the simple, speedy, knock-out sections. Unit may be installed either before or after plastering. Diffusers of greater length may be built up by use of connector kits, forming a continuous joint-free unit. Separate damper units—installed only where needed—permit frequent extra savings. Face hooks quickly and accurately into position by means of locking flange along the top.

The overall smart appearance of the Air Control No. 180 Baseboard Diffuser is a natural result of its carefully engineered design and its superb decorator styling—it's the finishing touch which your customers see, and by which they judge the whole job.



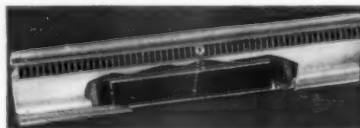
### KNOCK-OUT BOTTOM

Here's the modern, time-saving way to make your installations — simply knock out sections to match location of the duct. No loose or sliding parts — no tricky cutting and fitting. It's quick, it's positive — field proven!



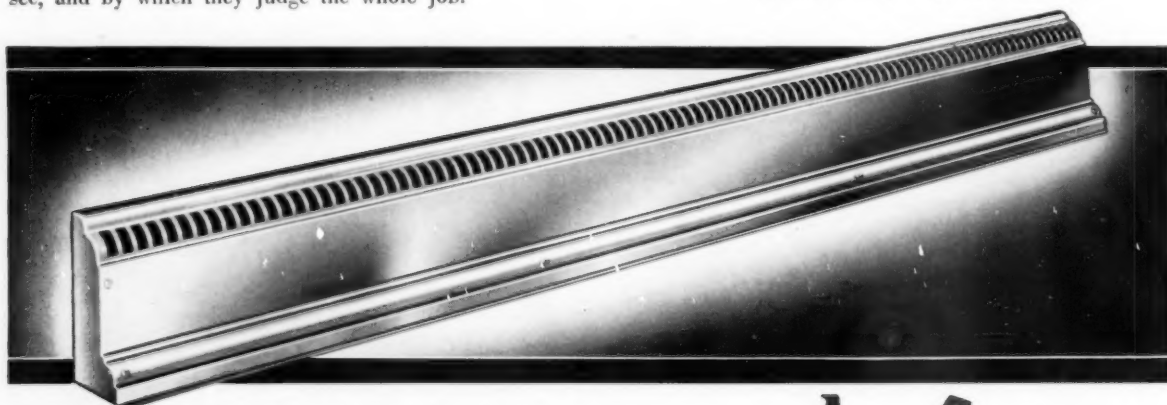
### SNAP-ON FACE

Continuous interlocking flanges hold the face panel in perfect alignment with the back, for the full length of the diffuser. Snaps into place in seconds and insures a smooth finished look. An exclusive Air Control feature!



### CUT DAMPER COST 1/2

Separate dampers save the cost of unused dampers, install them only where needed. Their convenient chain control makes it easy to balance the system. The damper is spring-loaded to stay open — can't accidentally fall shut and cause system to overheat.



### PERIMETER HEATING DIFFUSERS FOR EVERY REQUIREMENT



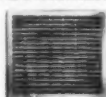
In 2' Lengths



For Floors



For Sidewalls



For Return Air

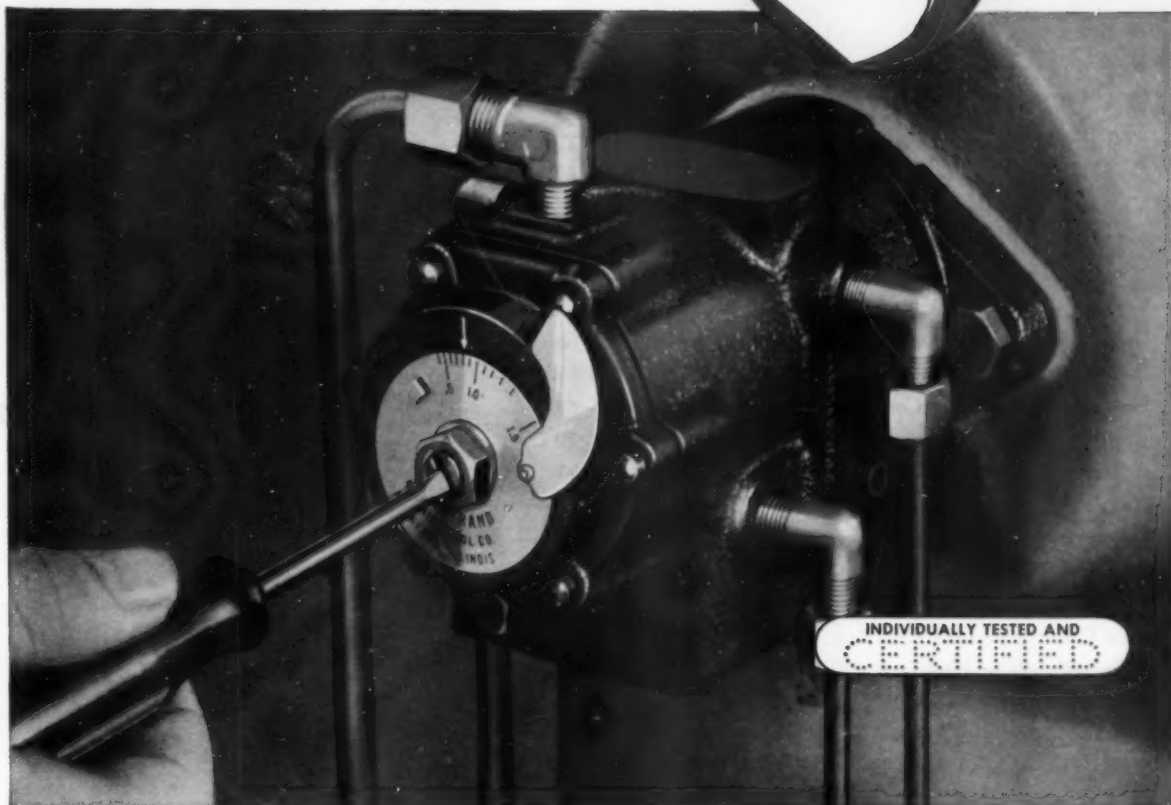
Ask for Catalog 54AC. Contains Complete Specifications and Engineering Data

# Air Control

**PRODUCTS, INC.**  
Department A. COOPERSVILLE, MICH.



## New Air-Oil Fuel Unit meters oil accurately regardless of viscosity



INDIVIDUALLY TESTED AND  
**CERTIFIED**

Excitement about Sundstrand's new Air-Oil Fuel Unit is increasing throughout the industry. In use now by many burner manufacturers, it promises to "burst out all over" within coming months. As burners must be designed specifically to use with this new fuel unit, no field installations should be made for conversion of high-pressure to low-pressure type systems except on manufacturer's recommendations.

No one feature accounts for the mounting interest. Some people point to the small, compact size (7" long, 3" in diameter, 7 lbs.

in weight). Others are impressed with the one-nozzle firing range—.4 to 1.5 gallons per hour. Still others are amazed at the efficiency and economy, due to precise synchronization of air and oil flow. But everyone likes the easily adjustable oil metering arrangements . . . either the external adjustment contained in the end cap, or the internal change of stationary metering cams. Either way, oil is metered accurately, regardless of viscosity. If you haven't seen the complete story on Sundstrand's latest development, send now for Bulletin 1107-1.

### HIGH-PRESSURE UNITS

Single- and Two-Stage for 3, 6, 10, 14, 20 gph firing rates . . . Strainer capacities—6, 10, 15, 20 gph. (Can be furnished for either fuel oil or gasoline.)

### LOW-PRESSURE UNITS

Two-Stage with fixed or variable metering. For .4 to 1.5 gph firing rates.

### SUNDSTRAND MACHINE TOOL CO.

Hydraulic Division, Rockford, Illinois

Made in Canada by John Inglis, Ltd.  
14 Strachan Ave., Toronto

# SUNDSTRAND

A name to remember in **FUEL UNITS**

# AMERICAN ARTISAN

SEPTEMBER 1954

## FEATURES

FTC Helps Maintain Heating Standards .....	27
Quality Work Produces Quantity Business .....	52
Marketing Data for Heating Dealers .....	55
Help Yourself to Extra Shop Time .....	56
You Can Guarantee Year 'Round Comfort .....	60
Venting Gas Fired Heating Equipment .....	63
How to Beat "Price Squeeze" .....	66
Better Wiring Aids Home Cooling .....	68
How's Residential Air Conditioning Going? .....	69
Dealers, Suppliers Picnic .....	70
A Tough Sheet Metal Welding Job .....	71
Housing Census Heating Data .....	72
Know Your Refrigerants for Home Cooling .....	74
Use Sales Tools to Build Volume .....	82
New Way to Measure Air Infiltration .....	86
How to Get a Federal Loan .....	88
Reduce Excessive Heat Loss and Smoke .....	91
New Standard for Oil Fired Furnaces .....	92
Dust Collector Inlet Arm — Design No. 2 .....	94
Making a Slip Lock Duct Fastener .....	100
How to Solder Stainless Steel .....	102
Finds Incentive Program Ups Efficiency .....	106
It's Good Business to Incorporate .....	108
Propose New Code for Furnaces, Unit Heaters .....	113

## DEPARTMENTS

The Editor's Notebook .....	6
What's Happening .....	19
Washington Letter .....	27
What the Associations Are Doing .....	39
Equipment Developments .....	43
Editorial — Goal: Lower Operating Costs .....	51
Hugh Reid's Pattern Problem .....	94
You and the Law .....	108
New Literature .....	182
We Hear That .....	192
Appointments .....	206
Index to Advertisers .....	220

Founded 1864

Volume 91 No. 9

WARM AIR HEATING

RESIDENTIAL AIR CONDITIONING

SHEET METAL CONTRACTING

Merged with American Artisan are "Warm Air Heating" and "Furnaces and Sheet Metals"

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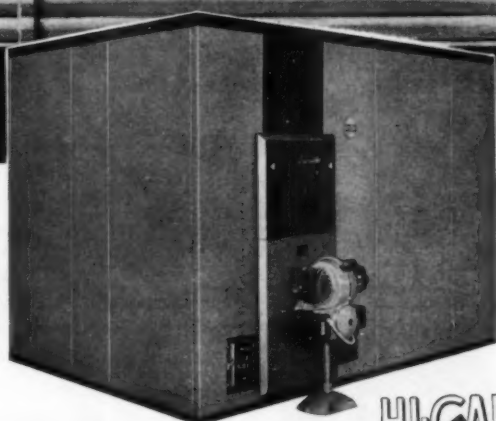
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**MORE AND MORE  
Architects, Builders and Engineers  
ARE SPECIFYING**  
*Syncromatic*



**HI-CAP**



## ...for EVERY INSTALLATION

Whether the job calls for 50,000 or 1,000,000 BTU, experienced designers and builders know "Syncromatic means Satisfaction." They know that excellence of design and precision engineering pay off long after the first cost is forgotten. Syncromatics cost more to make — less to use. And anything less than Syncromatic quality costs more later. Since you pay for Syncromatic quality either way, why not have it right away?

**A Feature-Packed Furnace For Every Need . . .**



**GF Gas Lo-Boy**  
75 — 145,000 B.T.U.  
Input



**"500" Series**  
Gas or Oil  
Counterflow



**GFU Gas Hi-Boy**  
75 — 95,000 B.T.U.  
Input



**"500" Series**  
Gas or Oil  
Standard Lo-Boy



**"700" Deluxe**  
Oil fired  
90 — 146,000 B.T.U.

You've got the jump on competition with Syncromatic. Here are Hi-Boys, Lo-Boys, and Counterflows for Gas or Oil — capable of meeting the precise requirements for every type of home or industrial installation. Available for burning oil, gas, coal — easily converted. Gas models AGA approved. Nationally advertised. Get the facts and you'll go Syncromatic!

Typical industrial furnace for schools, churches, public and commercial buildings. Oil, gas, stoker or hand-

fired. From 330,000 to 1,000,000 BTU. Don't miss this big market.

**Write Now** for the big story on home and commercial heating with Syncromatic top-flight quality.

Syncromatic Corporation, Watertown, Wis.

SEND ME COMPLETE INFORMATION —  
on the Syncromatic Line of Furnaces for  
Industrial and Home Heating

Name .....

Company .....

Address .....

City .....Zone .....State .....

*Syncromatic* Corporation

WATERTOWN, WISCONSIN

## the editor's notebook

### Thumbing Through This Month's Artisan

... we come across the admonition, *Know Your Refrigerants*, and see that it's followed by some valuable facts and figures on how refrigerants differ in major characteristics and the jobs they're best suited to do. S. W. Reid, in this month's addition to his current air conditioning series, tells us that the refrigerants best suited to residential cooling have low specific volume, low boiling points and many other characteristics — all fully described.

... we also find out *How to Beat the "Price Squeeze"* while maintaining top quality work, an important "how" — to say the least — at a time when price competition *must* be met and customers *must* be satisfied. Martin Schaar, a Milwaukee dealer, does it this way. He develops standardized, versatile duct fittings and other special equipment which simplify and speed up installation (and fabrication) time and actually improve the quality of the job. Shop procedures are streamlined and the most modern machines are used so that it's possible to produce fittings at the lowest possible cost. This enterprising shop's most important business technique, though, is to carefully engineer each job for the special characteristics of the home in question. This assures satisfied customers — without whom no amount of streamlining would be worth while.

... and we see some of the many ways in which you as a sheet metal

## IT'S NEW...IT'S HERE

*Sentry's*  
AT-A-GLANCE

### ODF\* TANK GAUGE gives exact reading level of oil in tank *at point of delivery!*

Located outside of building at fill pipe, this new, easy-to-read fraction calibrated, pressure-tight gauge shows the exact level of oil in tank at all times! Saves costly, time consuming trips to basement and unnecessary unreeling of hose... Permits delivery without disturbing customer and eliminates spills as there is a "stop filling" indicator on calibration. Made of weather-proof materials throughout with thermometer indicator securely encased in plastic dome that will not fog or cloud up. No gears, cams, magnets, tapes or intricate mechanisms to get out of order. Write for complete information and low cost unit prices on this modern "delivery point" remote reading gauge today.

**"OIL DEALERS' FRIEND"**

**TELLS WHEN OIL IS NEEDED**

**... HOW MUCH IS NEEDED**

**... WHEN TO STOP FILLING**

TYPE ODF-1 1/2 Fits 1 1/2" tank opening  
TYPE ODF-2 Fits 2" tank opening.

- Weather-tight plastic dome calibration assembly.
- Easy-to-read indicator.
- Shows exact reading level at all times.
- Made of quality oil, weather and corrosive resistant materials.
- Durable, heavy-duty construction.
- No complicated mechanism.
- Simple and quick to install.
- Lowest cost remote reading gauge on market.

On guard—24 hours a day

**KRUEGER *Sentry* GAUGES**  
GREEN BAY • WISCONSIN

## the editor's notebook

(continued)

dealer can *Help Yourself to Extra Shop Time* — using the tools and skilled manpower you already have. Author Lawrence Gichner describes a variety of devices thought up and fabricated by a number of shops — devices such as the wheel rest that speeds welding; the cleat bin, punch rack and clamp rack that make it easier to find tools; and the filing system that keeps all patterns visible and within reach. Ingenuity serves other purposes as well — notice the press brake handle that guarantees safe operation, the cut-down treadle shear that saves space, requires less effort to operate. All this means lower costs and higher quality work.

... we also are offered some very important do's and don'ts for *Venting Gas Fired Heating Equipment*. They're important because, as author Jerry Pollard points out, "the responsibility for venting equipment in a manner that assures safety to persons and property rests entirely with the men doing the job." In addition to such basic rules as "Keep the flue gases hot" and "Install a draft diverter," we get specific tips about how to join fittings, when to run separate vertical vents, how far upward to pitch lateral vents, etc. And our author doesn't just lay down the law — he explains all the why's and wherefore's of his recommendations.

... and we find out how to *Use Sales Tools to Build Volume* in W. J. Hoeing's article describing the various aids offered to dealers by manufacturers. These include sales literature (sales letters, pamphlets,





# 300,000 SQUARE FEET...

**DEVOTED TO THE PRODUCTION OF PREFABRICATED  
FURNACE FITTINGS, GRILLES, HUMIDIFIERS, RAIN GOODS**

#### YOUR ASSURANCE OF QUALITY AND SERVICE

We're proud that under one roof, we can devote 300,000 square feet of floor area to providing better service for our customers. To you it can mean truckload discounts without large inventories, savings in time and money when figuring costs, savings in space, and, above all, a complete line of well-engineered registers, fittings, humidifiers and rain goods.

#### YOUR CHOICE OF GALVANIZED OR ALUMINUM

Char-Gale fittings are currently being produced in both galvanized and aluminum, in quantities to suit your needs.

#### YOUR PROOF OF CHAR-GALE FORESIGHT

First in the production of forced air prefabricated ducts.  
First in the use of aluminum for ducts and fittings.  
First in the packaging and cartoning of fittings.  
First in the development of project packs (job for job).  
First in the development of the 4-inch pipe system.  
First to design the increased capacity 4½-inch system.

#### YOUR BEST SOURCE OF

- ★ Aluminum Fittings
- ★ Aluminum Pipe and Elbows
- ★ Aluminum Sheets
- ★ Galvanized Fittings
- ★ Galvanized Pipe and Elbows
- ★ Galvanized Sheets
- ★ Complete Small Pipe Systems; both Aluminum and Galvanized
- ★ Humidifiers
- ★ Rain Goods
- ★ Registers—Complete Line, both Perimeter and Conventional including Floor Diffusers

**For Information and Catalogs, Contact Your Jobber or Write Direct to**

**CHAR-GALE MANUFACTURING CO.**  
ANOKA, MINNESOTA

## the editor's notebook

(continued)

etc.), displays, demonstration models, and other types of materials and devices. From this wide variety the dealer can choose those best suited to his particular needs. His choice will be governed by the socio-economic characteristics of prospects, size of his business, the climate in which he operates and other factors mentioned by Mr. Hoing.

### Another View On "Sidelines"

OUR GOOD friend, Grant Wilcox, writes:

"I was reading the little article entitled *Sidelines Prove Good Sales Aids* on page 94 of the July issue of the Artisan.

"I think these dealers have a mistaken idea about where they have to go to get that extra business. It's a manifestation of that human feeling that the grass is always greener on the other side of the fence. All the dealer has to do is look through that good book of yours and he will see it's crammed with stories about successful heating dealers and their merchandising techniques."

### Steel Industry "Bigger Than Ever"

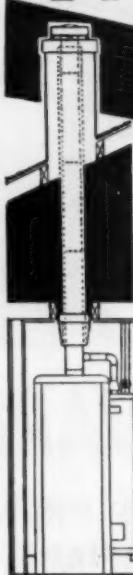
FROM the American Iron and Steel Institute comes the report that the steel industry is larger and more diversified than ever before. It consists of 255 companies, which maintain 430 plants making or finishing iron or steel in 31 states. This compares with the picture of 15 years ago when the industry had only 360 plants in 27 states.

Since 1951, the institute says, some of the industry's finished steel product capacities have shown marked increases, such increases being particularly large in the



"the Pioneer prefabricated Chimney"

# VITROLINER



for ALL FUELS

## FOR ONE OR TWO STORY BUILDINGS

Here's your opportunity to install America's finest prefabricated packaged Chimney. Functions as a complete chimney for ALL heating equipment.

**LIGHTWEIGHT**—only 10 to 15 lbs. per ft. Installs easily and quickly in less than an hour. The chimney is mounted between ceiling joists, directly over heating unit, saving valuable floor space.

Vitroliner is designed to fit the individual roof pitch, with a TAILOR-MADE roof flashing and flue housing—no cutting or fitting is required on the job!

In two-story construction (TYPE "L") the flue can be boxed in a corner of a room, closet or bath room.

Quality-built for long life—time tested for over 10 years and proven successful. Nationally accepted by large project home builders and single contractors. Accepted by F.H.A. and listed by Underwriters Laboratories for ALL fuels.

### FEATURES

- SAVES VALUABLE FLOOR SPACE
- INSTALLED IN 1 HOUR OR LESS
- HIGHEST QUALITY AT LOWEST PRICE
- HIGH HEATING EQUIPMENT EFFICIENCY
- PROVIDES ATTIC VENTILATION
- ELIMINATES CONDENSATION
- M.F.D. IN 6", 7", 8" AND 10" DIA.
- DIRECT FACTORY SHIPMENTS
- AVAILABLE IN ANY QUANTITY

Investigate this fast-selling modern low-cost chimney today. Write for illustrated circular or phone AR mitego 6-5070 for quotations.

# CONDENSATION

## ENGINEERING CORPORATION

3511 W. POTOMAC AVE., CHICAGO 51, ILL.

## the editor's notebook

(continued)

products widely used for consumer goods. For example, the capacity for hot rolled sheet and strip steel and coiled strip for tin plate is up 26 per cent; cold rolled sheet and strip capacity is up 42 per cent; and tin and terne plate capacity, up 12 per cent.

### "Don't Pull In Your Sales Horns"

WE NOTE that the U. S. Chamber of Commerce advises business to keep on advertising during slack periods. Reasons advanced by the chamber include: advertising preserves the firm's reputation; unless a business advertises regularly, buyers may turn to other dealers; even during a recession, there is a new generation of buyers in the making that needs to be kept informed; once the public is allowed to forget a dealer's name, years may be needed to re-establish it.

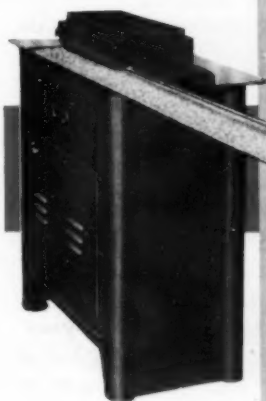
The chamber points out that World War II provided a perfect laboratory for the testing of arguments for and against advertising when normal buying habits are interrupted. "At that time," it concludes, "the arguments in favor of advertising won hands down."

### Overqualified Worker Presents Problem

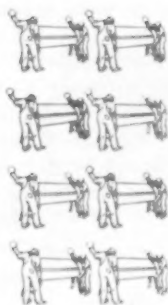
RESULTS of a study recently sent us by Industrial Psychology, Inc., a national psychological research organization, indicate that the overqualified worker can be a definite hazard, not only to the company that employs him, but also to his own mental health. "The overqualified worker has more psychological potential than the job can absorb," the report points

# NOTHING YOU CAN BUY....

- ..... will cut your costs so drastically,
- ..... will add so much to your profits,
- ..... will double your production so easily,
- ..... will repay its cost so many times over .....



as a **LOCKFORMER**



ONE MAN AND A  
LOCKFORMER MAKES MORE  
PITTSBURGH LOCKS THAN  
16 MEN AND 8 BRAKES



***I***t takes *two* men four or five minutes to make a Pittsburgh Lock with a foot brake or bar folder. One man makes the same lock, with a Lockformer, in less than 30 seconds. He makes a better looking lock, a more uniform lock, and one that assembles faster and easier.

Using this same Lockformer, he can also make Double Seams, (Acme) Standing Seams, Right Angles and Drive Cleats with similar speed. The Slitting Attachment further extends the Lockformer's usefulness.

The size of your shop doesn't matter. If you're fabricating sheet metal without Lockforming equipment, you're wasting money . . . *your* money. Send the coupon for your free copy of the Lockformer Catalog and get the full story. Right now, when the magazine is opened to the right page, is a good time to do it.

mail *Coupon* FOR CATALOG NOW!

**THE LOCKFORMER CO.** 4615 West Roosevelt Road, Chicago 50, Illinois

Gentlemen:

Please send current catalog to:

Name .....

Address .....

City .....

Zone .....

State .....

## the editor's notebook

(continued)

out. "Having too much ability, the job challenges him only for a limited amount of time. Then it becomes routine, repetitive, boring, lacking in stimulation. The end result—the overqualified employee becomes as inefficient, and even more dissatisfied, troublesome and annoying, than the underqualified worker."

Management can combat the problem of the overqualified employee, the report says, by 1) identifying him as such—through his application blank, in his interview, or through psychological testing; and 2) giving him the proper handling. For example, if he is a long term employee, he should be informed that his current assignment is part of his training process and that he will not be left on the job indefinitely. As a temporary or part time worker, it is noted, the overqualified person is often a very good risk, since he learns quickly and the assignment is over before he can become bored.

### Gas Furnace Shipments Up 10 Per Cent

THE GAS Appliance Manufacturers Association reports that industry shipments of gas fired furnaces are estimated at 240,600 units during the first half of 1954, an increase of 10.3 per cent over the total shipped during the first six months of 1953. The number of gas conversion burners shipped totals 79,700, as compared with 84,200 units shipped in the first half of 1953.

### FHA Rules on Construction Contracts

WE WERE glad to learn that the Federal Housing Administration has developed a plan

# Nu-Way

## The World's Finest Oil Burner

Insist on a heating plant equipped with a

Nu-Way Oil Burner.

Write for full details.



THE  
**Nu-Way CORPORATION**

ROCK ISLAND, ILLINOIS

Sold through jobbers and distributors.

The adopted standard on leading furnaces and boilers

"Automatic Oil Heat Exclusively Since 1921"

## the editor's notebook

(continued)

designed to prevent the exploitation of persons acquiring homes under its cooperating housing program.

The new commissioner, Norman P. Mason, said a new regulation provides for payment of construction costs on the basis of the actual cost of the work to be performed "plus a fixed fee in a reasonable amount not to exceed 10 per cent." He added that cost figures shall be exclusive of all "kickbacks, rebates and trade discounts."

Contractors engaged in the construction of cooperative housing on which mortgages are insured by the FHA, according to the ruling, must keep and maintain records of all costs and make them available for examination upon request of the FHA.

### Calls Housing Act A Boon to Home Buyers

R. G. HUGHES, president of the National Association of Home Builders, says that the Housing Act of 1954 provides "the best housing opportunity for home buyers in the past 20 years." He said that the legislation will make it easier for groups to buy homes, "particularly those millions of families in middle or low income brackets who make up the great bulk of the mass market and whose housing needs are most acute."

### Discusses Value of Open-End Mortgages

HORACE RUSSELL, general counsel of the United States Savings and Loan League, writing in a recent issue of the league's magazine, *Savings and Loan News*, discusses some of the advantages of the open-end mortgage—a source of credit for home improvement, repair and remodeling work.



# **EVERY HEATING or AIR CONDITIONING JOB** **IS A BETTER JOB WHEN YOU USE H&C PRODUCTS** **CHOOSE THE CORRECT REGISTER, GRILLE OR** **DIFFUSER FROM THIS ALL-STAR LINE UP . . .**

## CONVENTIONAL A.C. SYSTEMS

## GRAVITY SYSTEMS

## PERIMETER SYSTEMS

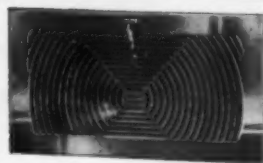
### SIDEWALL AND BASEBOARD



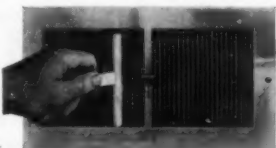
**No. 74 DESIGN**  
Low-Cost **QUALITY** registers.



**No. 130 SERIES**  
Baseboard Register, adjustable fin type.



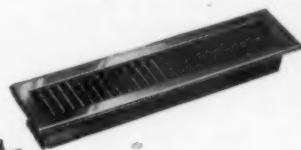
**No. 401 SIDEWALL DIFFUSER**  
With Volume Control Valve. Blankets wall of average room.



**No. 75 DESIGN**  
The only registers with the **TURNING BLADE VALVE**.



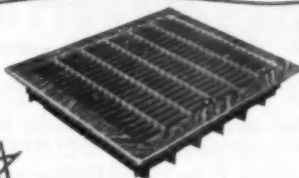
**No. 330 SERIES**  
Sidewall Register, companion to No. 130.



**No. 411 FLOOR DIFFUSER**  
With opposed louvers for perfect air pattern.



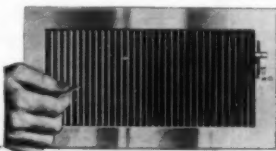
**No. 76 DESIGN**  
Fin type face with multi-shutter valve. Very popular.



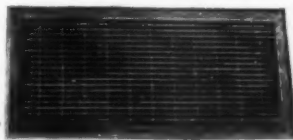
**No. 210 "NO-FLEX"**  
Floor Register. Sturdy and rigid.



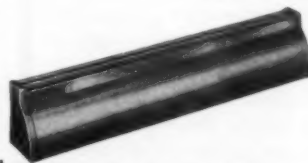
**No. 44 SERIES CONTINUOUS BASEBOARD**—Requires no tools to assemble or disassemble. For installation in multiples of 2' and 4'.



**No. 88 DESIGN**  
Adjustable Bar Type. Multi-shutter valve. Sizes up to 20" x 30".



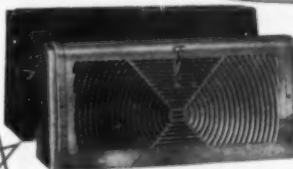
**No. 265 "NO-FLEX"**  
RETURN AIR FACE. Large free area.



**No. 452 HIGH CAPACITY BASEBOARD UNIT (2 H.)**



**CEILING DIFFUSER**  
Sizes 6, 8, 10, 12, 14. No. 12 Dual Control Damper available.



**No. 405 BASEBOARD DIFFUSER**  
With floor opening. Projection 2 3/8"

**HART & COOLEY MANUFACTURING CO.**

100 EAST LEXINGTON ST.  
HOLLAND, MICH.

PRODUCT OF THE WORLD'S LARGEST and MOST PROGRESSIVE PRODUCERS OF REGISTERS and GRILLES

## the editor's notebook

(continued)

Under the open-end provision, a family which has reduced the principal of its mortgage is permitted to re-borrow, with no change in interest rate, the amount of the principal so far repaid or, in some instances, an even larger amount. This additional advance is then amortized with the remainder of the mortgage over the life of the loan.

Mr. Russell calls the open-end plan an essential part of what he thinks savings associations should use as a "flexible mortgage contract" to cover all family financing needs. "Such flexible provisions," he states, "enable a borrower with a good loan record to take advantage of the credit rating he has established."

### Aluminum Industry Sets New Record

DONALD M. WHITE, secretary of The Aluminum Association, reports a new quarterly production high of 732,515,499 lb for the quarter ending June 30. "Coming months are likely to see still further increases in primary production," he predicted. "Although the 'second round' of aluminum expansion is now complete except for one plant which will not begin operation until early next year, some new equipment is not yet in full commercial production. Capacity operation of this new equipment would bring new records in the second half of the year."

He pointed out that this increased production has resulted in the development of new uses for aluminum in both new and established fields. "Some of the most spectacular developments are taking place in the building field," he said, and cited the new building at 460 Park Ave. in New York City as

## We use oil for fuel not for FILTERS...

● No messy oils or adhesives are needed with A-LUM-O-AIRE filters. The filter media of A-lum-o wool with its millions of tiny barbs does the job.



Highly magnified view of A-lum-o wool



# A-LUM-O-AIRE

PERMANENT AIR FILTER

TRADEMARK REGISTERED

## clean • safe • efficient

If filter servicing is a headache for you, here's good news! New A-LUM-O-AIRE Permanent Type Filters feature an exclusive dry-type media which makes cleaning or replacement a "sunday suit" affair. Just flush with water and it's ready to go back on the job. Never rusts; no fire hazard.

And the point is YOU make more profits on per-unit filter sales—with less risk of loss on carry-over stock. Tremendous repeat-sale potential indicated by enthusiastic user reports of greater economy and performance. Get in on this fast-moving volume-building line NOW... and get your share of a rapidly-expanding market.

Exclusive dealer/distributorships still available to established outlets in several selected areas. Sales and advertising assistance to meet local requirements. Write us on your letterhead for full details and particulars today!

METAL WOOL DIVISION OF  
**CAREY ELECTRONIC ENG. CO.**  
SPRINGFIELD, OHIO

## the editor's notebook

(continued)

an example. The two street-side walls of this 17 story structure, he said, were completely covered with prefabricated aluminum panels in only one working day.

### Prescribes American Success Formula

U. S. EMPLOYER Delegate William L. McGrath's speech given at the International Labor Organization Conference held in Geneva, Switzerland, interested me. Mr. McGrath, who is president of the Williamson Heater Co., pointed out that developing a product that people want and furnishing it at a price they can afford has made the economy of America great and the same formula can be applied in other nations to raise their standard of living. He reminded his audience that just 100 years ago the United States was an under-developed country, with many citizens living in one-room log cabins. "What took place in our country since then can take place now in nations whose economy is today in transition from subsistence farming to industrial production."

"Once you can establish a market by making people want something you can furnish at a price they can pay, you have greater productivity, higher payrolls, and a rising standard of living," he added. "This method requires three conditions for its successful operation: 1) a competitive economy; 2) a sincere belief in the desirability of giving the consumer the most you can for his money; and 3) a conviction that employees are your best customers."

*Clyde M. Barnes*

EDITOR

Keeping a step ahead...

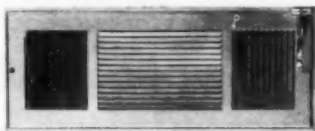


# MIDCO AGAIN LEADS THE FIELD

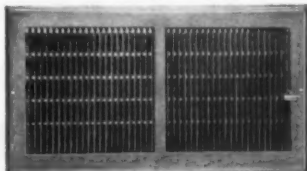
with a new and smarter Ceiling Diffuser!

Here's the beauty that's going to be a favorite with the retailer, the installer and the homeowner . . . Midco's smart, new Ceiling Diffuser No. 101! This square, modern design has clean, functional lines that result not only in more beauty, but in maximum effectiveness as well. The blades are adjustable to eliminate drafts. Available in 6" - 8" - 10" - 12" and 14" for immediate delivery.

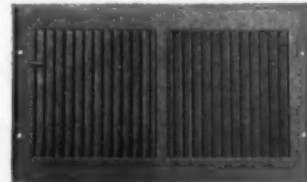
Jobbers everywhere are learning that it pays to go along with Midco—that it pays to handle the complete Midco line of registers, grilles and floor faces, because Midco keeps pace with the rapid advances in the heating and air conditioning industry. They know that a Midco register is scientifically designed and engineered for beauty and efficiency — and yet priced no higher than other registers.



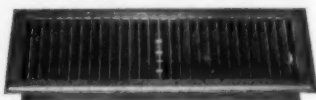
NO. 80  
Perimeter sidewall diffuser. Newest and most attractive perimeter sidewall aspirating unit yet designed.



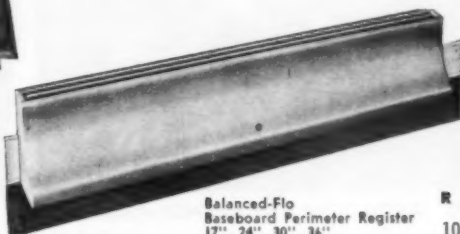
NO. 30—1/4" vertical fin sidewall register



NO. 30S  
1/2" vertical fin sidewall multiple louver register for commercial air conditioning



NO. 512—Perimeter floor register



Balanced-Flo  
Baseboard Perimeter Register  
17", 24", 30", 36"

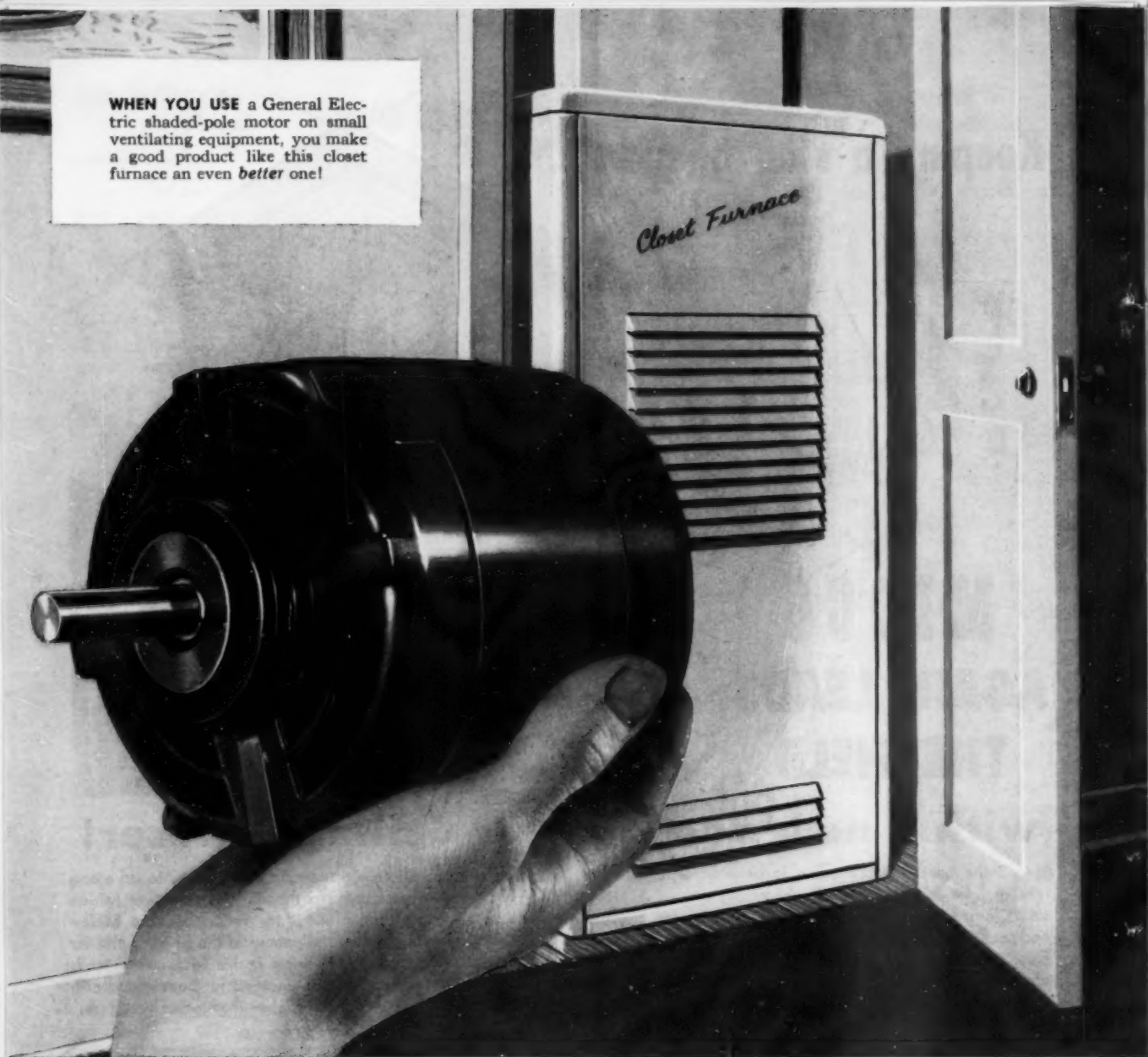
Some jobber outlets are still open. Write today for the full Midco story.

# MIDCO

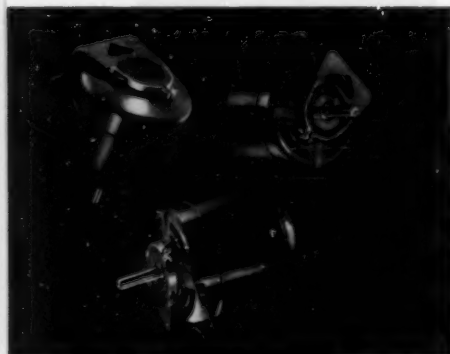
REGISTER CORPORATION

1059 GRAND AVENUE • ST. PAUL 5, MINNESOTA

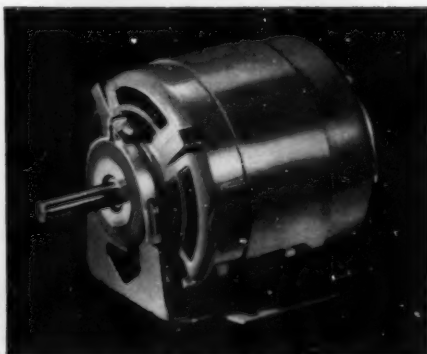
**WHEN YOU USE** a General Electric shaded-pole motor on small ventilating equipment, you make a good product like this closet furnace an even *better* one!



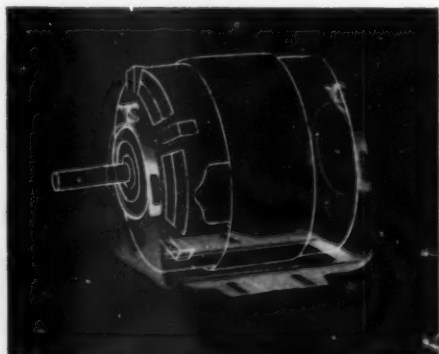
## Here are six reasons why your product



**1. VERSATILE** all-angle unit-bearing design and sealed-in lubrication system permit motor to be mounted in any position.



**2. ATTRACTIVE APPEARANCE** of motor improves the appearance of your product in applications where the motor will be visible.



**3. MOUNTING CONVENIENCE** helps solve product design problems. Use resilient cradle-base or end-ring mounting.



To simplify design and production problems  
...and add the advantage of motor quality

# Specify G-E shaded-pole motors

Designers and builders of furnace blowers, room air conditioners, ventilating fans, evaporative coolers, and similar products find that General Electric shaded-pole motors simplify product-design and manufacturing problems while providing high-quality operation.

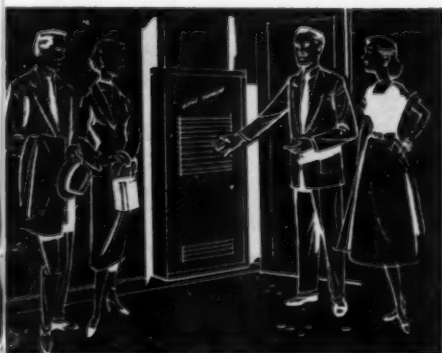
Here are a few of the many reasons why you too can benefit by specifying G-E shaded-pole motors: Quiet, dependable operation resulting from high-quality construction is a big selling feature. Permanent lubrication makes provision for oiling unnecessary. All-angle operation permits more versatile product design, helps solve tough mounting problems. Small, light motors cut the total weight of your products, fit current trends to smaller, smarter-looking products.

If you are designing new air-moving equipment, or redesigning your present line, it will pay you to contact your nearby G-E Apparatus Sales Office and obtain complete information on G-E shaded-pole motors. Or write General Electric Co., Section 704-26, Schenectady 5, N. Y.

*Progress Is Our Most Important Product*

**GENERAL**  **ELECTRIC**

should use a G-E Shaded-pole Motor



**4. QUIET OPERATION** is a big selling feature. It is gained by accurate alignment and positive lubrication.

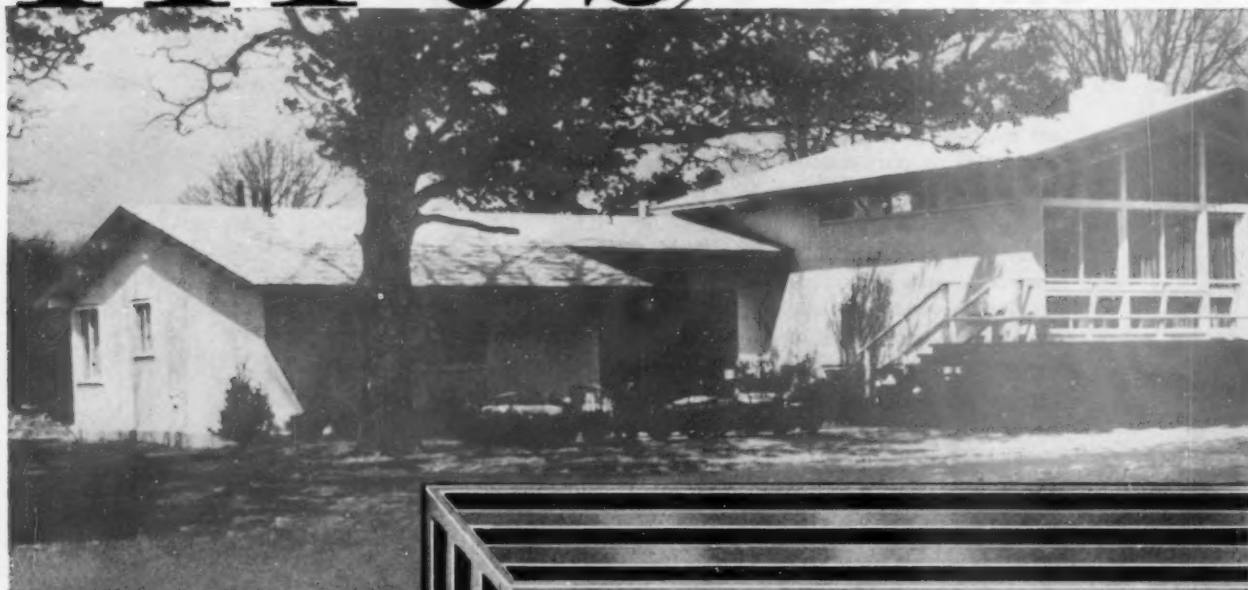


**5. PERMANENT LUBRICATION** avoids inconvenience of adding lubricant . . . reduces maintenance to a minimum.



**6. "EQUIPPED WITH A G-E MOTOR"** helps sell your product by backing it up with G.E.'s reputation for quality motors.

# TITUS *new*



● 1954 House of Ideas, West Hartford, Conn. Air conditioning by The George Ellis Co.

Only newest, finest, most efficient heating and cooling equipment was used in this 1954 House of Ideas. Titus Perimeter Diffusers were specified because comparison showed they had no equal. They were years ahead in features, in acceptance, in performance.

## UNBEATABLE LOW COST

One boot and damper size. Easy to stock and install. No roughing-in. More complete factory assembly. No metal cutting. Special design mounting slips. Adds strength and rigidity to boot. Eliminates boot flutter and by-pass of air.

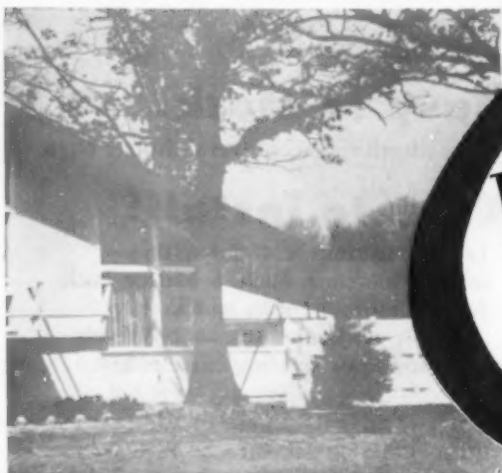
## GREATEST FREE AREA LOWEST PRESSURE REQUIREMENTS

Cool air easily forced high up wall. Maintains broad pattern for heating. No draft or stagnation areas. Handles warm or cool forced air with equal efficiency.

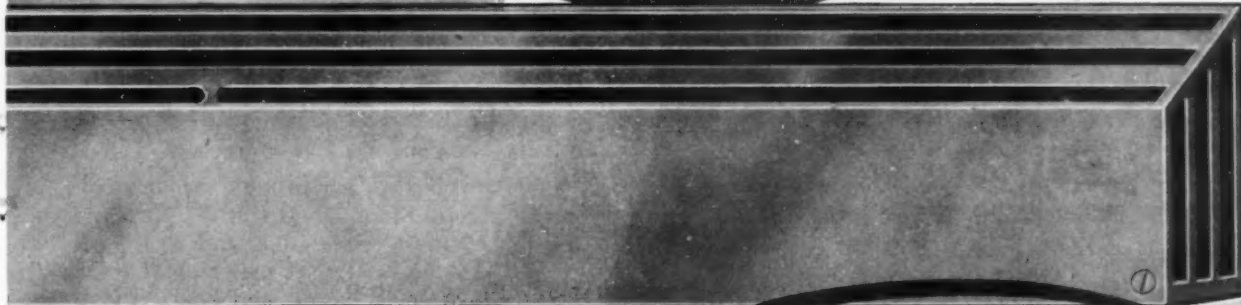
## CURVED BAFFLES UTILIZE ALL FREE AREA, GIVE 180° DIFFUSION

Direct air where it is needed. Eliminate turbulence. Direct air through end slots for 180° diffusion. Circulate air gently with no draft, no noise.

# Perimeter Diffusers



Specified for  
House & Garden's  
1954  
HOUSE of IDEAS



## ONLY 2 PARTS

Back, sides and top welded together. Simplify installation. Two screws only are used to fasten diffuser because special design mounting slip locks boot in place with less labor, less expense.

## CHOICE OF 3 MODELS

No. 50: 17" in length. No. 100: 30" in length.  
No. 150: 60" in length. No. 150 consists of 2  
No. 100 diffusers joined with clips.

## NEW STYLING

Lower, narrower silhouette. Streamlined. Recesses in baseboard. Allows easy drape movement because of tapered ends.

SEND FOR NEW  
AUTHORITATIVE MANUALS  
ON COMPLETE PERIMETER DIFFUSER STORY

MAIL COUPON TODAY

TITUS, INC., WATERLOO, IOWA

Gentlemen: Please rush me the following FREE information.

- |  |  |
|--|--|
| <input type="checkbox"/> New 1954 Perimeter Diffuser Catalog           | <input type="checkbox"/> Booklet on Trends in Warm Air Heating |
| <input type="checkbox"/> New 6-page Installation Design Manual No. 1   | <input type="checkbox"/> Display Kit Information               |
| <input type="checkbox"/> Sample Diffuser<br>(Invoice sent with sample) |  |

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_

# MILCOR<sup>\*</sup> Galvanized Furnace Pipe

now in convenient **5-foot** lengths!



Available in 4", 5"  
6", 7" and 8" sizes —  
30 and 28 gauge



**New Milcor  
Lock-Joint for  
5-foot Lengths**

*Stronger! Tighter!  
Easier to lock!*



Button-type interlocking tongue  
fits easily, quickly, into concealed  
slot. You simply slide the notched  
edge into the opposite groove and  
you have a tight seam — the pipe  
can't pull apart.

## Easy to stock!

One length replaces several shorter ones.

## Easy to install!

Longer sections cut down on  
installation time. Famous Milcor Lock-  
Joint feature permits quick, easy  
assembly without tools — positively  
no seaming or riveting is necessary.

These advantages are in addition to  
those inherent in Inland TI-CO  
*galvanized steel* — strength and du-  
rability. Together, they give you  
everything you need to do efficient,  
good-looking warm-air and air-  
conditioning jobs — at savings of  
time, money, and effort.

You can get prompt shipment of  
these 5-foot lengths in 4", 5", 6",  
7" and 8" sizes — 30 and 28 gauge.  
A complete line of matching accessories,  
wall stack, heads, and boots is  
available—including perimeter fittings.

Order your requirements now.  
Prices are available from branches listed  
below, or from your heating jobber.

**INLAND STEEL PRODUCTS COMPANY**

4053 W. BURNHAM ST. • MILWAUKEE 1, WISCONSIN

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1541 E. 38th St. — DETROIT 2, MICH., 690 Amsterdam Ave. —  
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4807 E. 49th St. — NEW YORK 17, N. Y., 230 Park Ave. —  
ST. LOUIS 10, MO., 4215 Clayton Ave.

\*Reg. U. S. Pat. Off.



## Cites New Construction Records

HIGH RATES OF ACTIVITY in construction contract awards for single-family homes, schools and commercial buildings were among the outstanding trends in the first half of 1954, according to a midyear review by Dr. George Cline Smith, economist for F. W. Dodge Corp.

In the residential category, Dr. Smith noted a strong trend toward construction of single-family homes at the expense of multi-family housing. Contract awards for residential construction in the 37 eastern states totaled \$3981 million in the first half of 1954, which was 22 per cent above the total for the first six months of last year. This rise was accounted for primarily by an increase in awards for one-family dwellings. Awards for apartment construction continued the steady decline which has shown up each year since the 1951 peak in this category, the total for the first half of this year being 11 per cent below the like period of last year. Awards for two-family houses made up a relatively small part of the total.

Awards for school and college buildings in the first six months of 1954 totaled \$936 million, a new rec-

ord for the six month period and 29 per cent above the first half of last year. The great growth in construction of churches and other religious buildings is reflected in an almost unbroken increase in contract awards since World War II. The total for the first half of 1954 is 28 per cent above the same period of last year. Contract awards for hospital construction reversed a three year decline and jumped 54 per cent above last year.

Awards for commercial construction were 34 per cent above the total reached during the first six months of 1953, the previous all-time high in this category.

Dr. Smith concludes his review with the prediction that construction activity for the remainder of the year, at least, will continue at very high levels. "This will be reflected directly in construction employment and payrolls and in sales and shipments of construction materials," he stated. "Indirectly, the effect will spread through other fields of activity as a powerful upward force, since this \$35 billion a year industry is one of the mainstays of the national economy."

## NAHB Exhibit Center To Serve Industry, Public

MORE THAN 100 manufacturers have signed contracts to exhibit their products in the National Housing Center now being constructed in Washington, D. C. Scheduled for completion in May, 1955, the building will serve both as headquarters for the National Association of Home Builders and as an exhibit center where companies and groups which supply materials and equipment for the home building industry may demonstrate their products and services. The principal purpose of the center is to help members of the home building and allied industries keep abreast of new developments in their field and to acquaint the general public with the changes that are taking place in today's homes.

Manufacturers of heating, sheet metal and air conditioning products who have thus far reserved exhibition space include: Airtemp Div., Chrysler Corp.; Bryant Heater Div., Affiliated Gas Equipment, Inc.; General Electric Co.; Minneapolis-Honeywell Regulator Co.; Perfection Stove Co.; Sunbeam Air Conditioner Div., American Radiator and Standard Sanitary Corp.; and Westinghouse Electric Corp.

## SBA Approves \$1,427,300 in Additional Loans

TWENTY-SIX MORE LOANS to small businesses, totaling \$1,427,300, have recently been approved by the Small Business Administration. The loans range in size from \$700 to \$150,000, with 15 of them being for amounts of \$50,000 or less. Two of the companies approved have only one employee, while 17 others employ 16 persons or less. Various types of business are represented, including a welding shop, a plant for producing metal turning tools and a heating specialty plant. To date, SBA has tentatively approved 553 loans totaling \$32,320,562.

## May Require Cooling Towers

A NUMBER of Cleveland suburbs, including Mayfield Heights, Parma, Independence, Brecksville, Willowick, Shaker Heights, Bedford and Bedford Heights, have recently reported water shortages. Council President Everett A. Sission of Mayfield Heights, in introducing legislation which would compel users of air conditioning systems to install recirculating towers, said that one of the primary reasons for water shortages is the water used by air conditioning installations in large shopping areas. Sprinkling bans are already in operation in sev-

eral of the suburbs and are being considered in others. The Cleveland council is expected to approve an increase in suburban water rates designed to pay for the water department's expansion, which has taken place primarily in the suburbs. Under the plan, water rates will be increased 18 per cent in some suburbs and 20 per cent in others. Utilities director Emil Crown reported that for the first six months of 1954 suburban consumption was up more than 10 per cent over 1953.

(Please turn to page 22)



**THE**

*Aerofuse*

**LINE**

In appearance, Aerofuse Diffusers are styled to harmonize with contemporary architectural concepts . . . in performance, the flexibility of the line permits engineers to select a type and size that will operate with top efficiency . . . simplicity of design and rugged construction result in simplified installation. Good reasons why Aerofuse Diffusers have nation-wide acceptance by architects, engineers, contractors and owners, and are installed in the most modern multi-story office buildings and department stores, in commercial and recreational buildings, institutions and industrial plants . . . wherever people work or relax in air conditioned comfort.



**TYPE PA**

Adjustable pattern diffuser



**TYPE PR**

Flush type, fixed pattern supply and return diffuser



**TYPE PLF**

Flush type, fixed pattern diffuser combined with light fixture



**TYPE S**

Flush type, fixed pattern diffuser



**TYPE H**

Flush type, fixed pattern half-round diffuser

### **Accessory Equipment**

To meet specific air delivery requirements, volume control dampers, distributing grids, blanking baffles, and other accessory equipment is available for all Aerofuse Diffusers.

**A wide selection of diffuser types and sizes, styled and engineered to meet the most rigid requirements of appearance and performance at the point of air delivery**



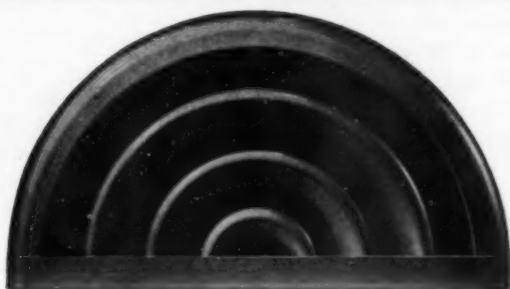
**TYPE PS**

Stepped-down type, fixed pattern diffuser



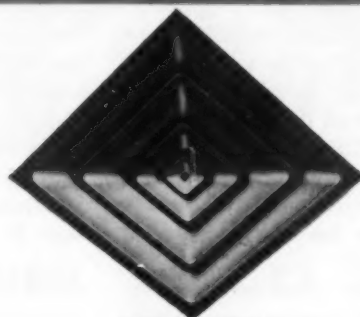
**TYPE PF**

Flush type, fixed pattern diffuser



**TYPE PH**

Flush type, fixed pattern, half round diffuser



**TYPE D**

Flush type, fixed pattern square diffuser



**TYPE ES**

Stepped-down type, fixed pattern diffuser

**NEW . . . Aerofuse Catalog No. 108.**

Complete information on the Aerofuse line of ceiling diffusers and accessory equipment, engineering data, size selection charts and directions for installation. Send for your copy today.

**TUTTLE & BAILEY inc**

**NEW BRITAIN, CONNECTICUT**



## Oil Burner Courses Begin

UNDER THE GUIDANCE of John M. Sibarium, technical adviser to state chapters of oil heating associations, a series of refresher and advanced oil heat training courses is being conducted by various state and county associations in New York, New Jersey, Pennsylvania and Michigan. The first school, on the schedule for September 8, was held under the auspices of I. Burack, Inc., Westchester County, N. Y. Other schools will open in all four states during the last two weeks of September and will run from eight to 17 weeks, one night a week. Subjects to be covered include combustion testing, control trouble shooting, pumps, motors, high and low pressure oil burners, rotary, vaporizing burners and constant level valves. Air conditioning, heat gain and heat loss will also be taught in many of the schools.

Certain of the schools will work in conjunction with the adult education programs of the respective county boards of education, and the fees will be the usual county requirements which will be less than 50 cents per lesson per man.

Among the instructors — furnished by the manufacturers participating in the program — are I. M. Nelson of the Boston Machine Works Co.; Bob Gregory, General Filters, Inc.; and Ward Brundage of the Brundage Co. Mr. Sibarium will also teach in all states where the program is in operation.

In New York City and vicinity,

schools are scheduled to open the third week of September in the following places: Port Jefferson, Patchogue, Amityville, Glen Cove, Hempstead and Kew Gardens.

In New Jersey, schools will be in operation in Morristown, Newark, Hackensack, Elizabeth, Trenton, Red Bank, Camden, Bloomfield, Mercerville and New Brunswick. These will be sponsored by the respective county oil heat associations as part of the New Jersey Oil Heat Council which is an official wing of the New Jersey State Fuel Oil Distributors Association.

In Pennsylvania, the schools are under the Greater Philadelphia Fuel Conference (OHI) chapter.

In Michigan, the program is under the Michigan State Petroleum Association, whose headquarters are in Detroit. Schools will open in Detroit, Lansing, Grand Rapids and Port Huron.

For details on any of the schools mentioned above, write to John M. Sibarium, 146-03 21st Ave., White-stone 57, N. Y.

## ASHVE to Change Name?

AT THE RECENT semi-annual meeting of the American Society of Heating and Ventilating Engineers at Swampscott, Mass., the council authorized taking the necessary steps to change the name of the organization to American Society of Air Conditioning Engineers. According to L. N. Hunter, ASHVE president, many members have felt that the present name does not adequately describe the scope of the society's present interests and fails to express its authoritative position in the air conditioning field. The matter will be brought up for final action at the next annual meeting of the society scheduled to be held in Philadelphia next January. Members who cannot attend the meeting in person will have an opportunity to vote by proxy.

## Discuss Increasing Use Of Plastics in Building

A COMPREHENSIVE EXAMINATION of plastic products — their structural, utility and decorative uses — and their increasing role in the light and heavy construction industries will highlight a conference on plastics in building, scheduled for October 27 and 28, at the National Academy of Sciences in Washington, D. C. The meeting will be the first of its kind and is expected to attract architects, designers, engineers, contractors and manufacturers of component parts of buildings from throughout the nation.

The two day meeting is sponsored by the Society of the Plastics Industry, Inc., the Manufacturing Chemists' Association and the advisory board of the Building Research Institute, National Academy of Sciences-National Research Council.

The sessions will consider plastics in building from four major aspects: an introduction to the general subject; specific applications; standards and codes; and future uses. Speakers scheduled include O. L. Pierson, who will discuss plastics as used in skylights and luminous ceilings; A. T. Waidelich, who will talk on the uses of plastics in sandwich walls and similar prefabricated structural panels; Hiram McCann, whose talk will be devoted to plastics in flooring, wall surfacing and work surfaces; Dr. Raymond B. Seymour, who will discuss plastic ducts and conduits; and F. J. Rarig, who will discuss the legal status of building codes and the regulation of plastics under building codes.

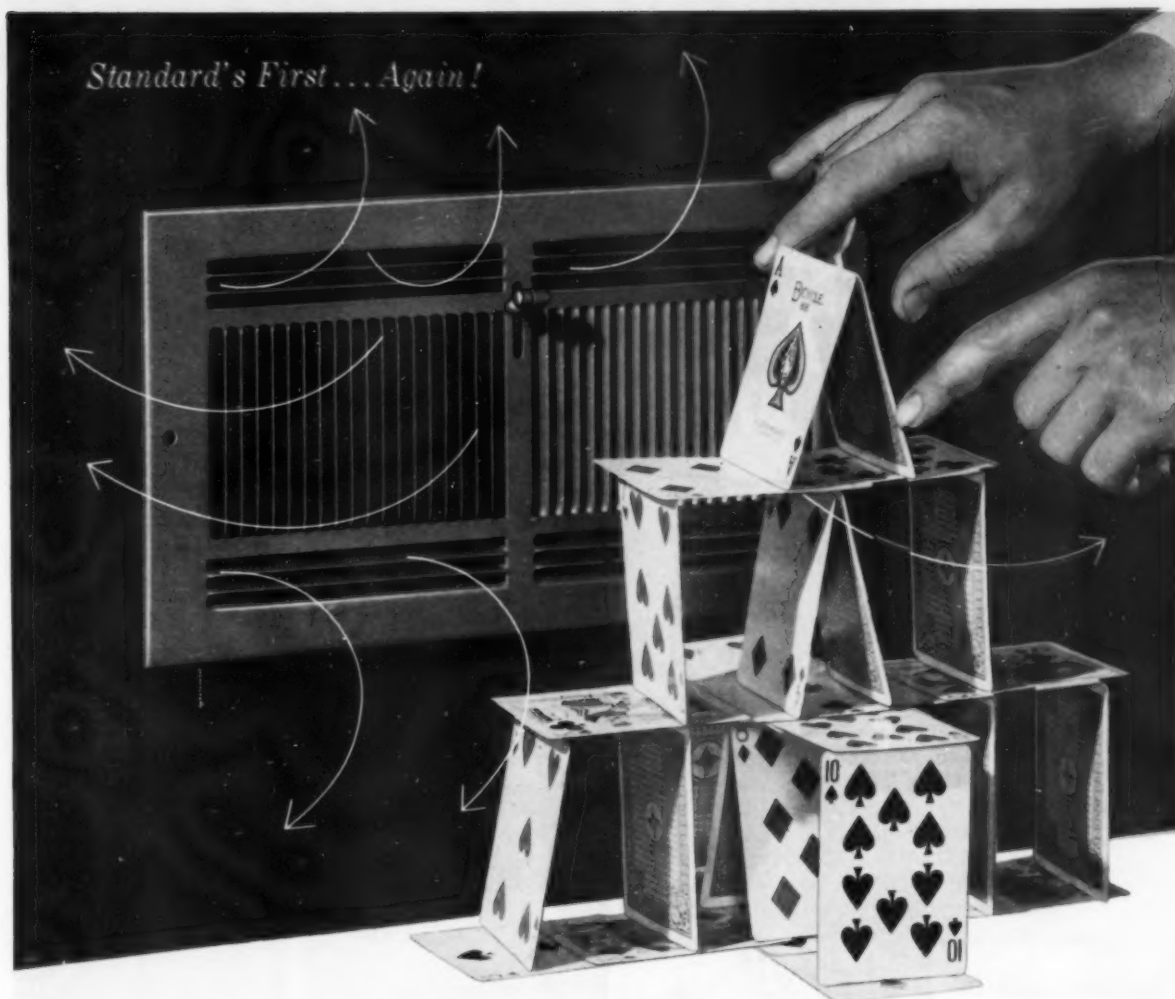
## Employers Spend More On Fringe Benefits


FINAL REPORTS on a U.S. Chamber of Commerce survey of 940 companies show that employer payments for social security and other fringe benefits averaged \$720 per employee in '53, \$76 more than in '52.

## FHA Issues New Cooling Requirements

NOW AVAILABLE from Underwriters Div., Federal Housing Administration, Washington, D.C., is Bulletin ME-12, superseding ME-10, which describes FHA's criteria for acceptable residential air conditioning installations.





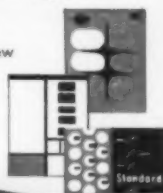
**there's no trick  to it!**

*if you use **Standard's No. 551**...no blasts, no hot spots, no cold corners!*

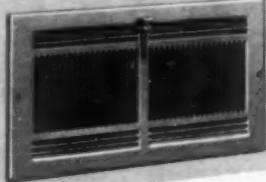
Standard's Perimeter Wall Register (No. 551) ends hot air blast and spotty heating for all time. Its 4-way, 360° diffusion of air provides complete hemispheric heating and cooling comfort. Warm air is distributed evenly along the outer cold walls, resulting in uniform temperature control throughout each room.

- NEW FRACTIONATOR VOLUME CONTROL • STANDARD SCREW HOLES • SINGLE SHUTTER CONTROL
- SMART APPEARANCE • FOR SIDEWALL OR BASEBOARD INSTALLATION
- ACCLAIMED BY THOUSANDS OF HOME AND COMMERCIAL BUILDING OWNERS

**WRITE NOW!** See for yourself why the Standard 551 is the best perimeter wall register on the market! Mail the coupon for copies of testimonials and case histories of people who are enjoying real indoor comfort with Standard's new 551 Registers. We'll rush them to you free, along with descriptive literature.



**STANDARD  
STAMPING  
& PERFORATING CO.**



STANDARD STAMPING & PERFORATING COMPANY  
3127 WEST 45TH PLACE CHICAGO 32, ILLINOIS 60632

Enclosure: Please send me five testimonials, case histories, and literature on the Standard No. 551 Perimeter Wall Register.

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Everyone's Praising...

THE NEW SERIES "W"  
**VICTOR**  
 A COMPLETE LINE FOR BOTH GAS AND OIL

**A TWO TONED BEAUTY  
 EASIER INSTALLATION**

- **WARRANTED** for 15 Years.
- **ONE MODEL.** An efficient oil furnace ... or an equally efficient gas furnace, fully approved by AGA.
- **LONGER LIFE.** Corrosion resistant alloy steel construction.
- **SELLS FASTER.** VICTOR features of genuine merit, PLUS patented, heat-radiating **FINS**.

**WINGHAM SALES CO.  
 MADISON**

"Every change has been an improvement. All remarks are in praise of these new models."

— R. WINGHAM

*they all  
 Praise it...*

**ANGLIN & STRONG  
 Crawfordsville, Ind.**

"We felt you had the top furnace ... but this new "W" model has features that make it the best yet."

— K. E. STRONG

**ONYETT'S FURNACE  
 SHOP Oakland City**

A big improvement on previous models in both appearance AND EASE of setting up. I am well pleased."

— DON ONYETT



**WRITE, WIRE OR PHONE TODAY  
 YOU'LL SELL MORE VICTORS ... FASTER**

More exclusive features for faster selling. A line famous for quality since 1890. A dealer franchise for bigger profits. Write for information on the complete VICTOR line.

**HALL-NEAL FURNACE CO.**

1322-42 NORTH CAPITOL AVE., INDIANAPOLIS 7, IND.

QUALITY FURNACE BUILDERS SINCE 1890

• VICTORS •



**FINS**

# USS Galvanized Steel Sheets

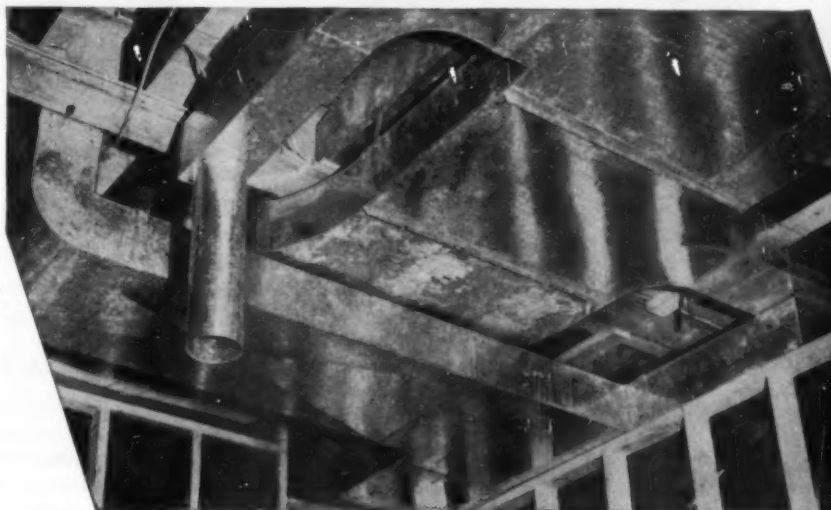
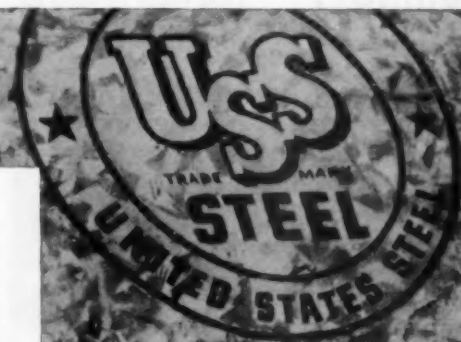
back up good workmanship on complicated installations

WHENEVER you're faced with an unusual or difficult ductwork job, it pays you to use the best materials possible. Things go a lot smoother when you use steel sheets that are flexible enough to fabricate readily and conform easily to the design required—and at the same time, have enough strength to hold their shape and to form neat, tight bends, joints and angles. In other words, it pays to use sheets like USS Galvanized Steel Sheets. Their fine quality is a complement to the skill of your best workman.

USS Galvanized Steel Sheets are made from high-quality carbon steel, with a uniformly heavy coating of zinc that won't flake or crack, assuring a lasting protection from rust and corrosion. Because all USS Steel Sheets are uniform in flatness, ductility and workability, they can be bent, cut or stamped easily and quickly.

Your customers know and appreciate the quality that stands behind the USS Label appearing on USS Galvanized Steel Sheets. It will pay you—in satisfied customers and repeat orders—to cash in on the wide acceptance of this well-known product.

USS Galvanized Steel Sheets are available in quantity now. You can be sure that you can get all you need to handle any size job. Ask your sheet distributor or our nearest office. United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.



UNITED STATES STEEL CORPORATION, PITTSBURGH • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO  
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS, COAST-TO-COAST  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

## USS GALVANIZED STEEL SHEETS



4-1689

UNITED STATES STEEL



"UNI-FLO"  
ENGINEERED

# Air Distribution

...for no smudge  
on acoustical ceilings!

Architect and Building Manager: Edwin J. Kraus, Consulting Engineers and Air Conditioning  
Contractors: Hoyer Heating Co. Sheet Metal Contractors: Louis Hoffman Co., all of Milwaukee.

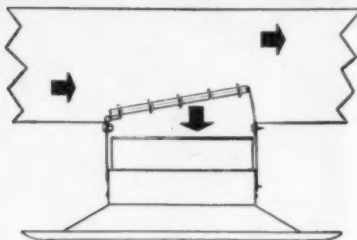


(Above) First National Bank Building, Milwaukee, another building in which Uni-Flo equipment eliminated smudged ceiling problem.

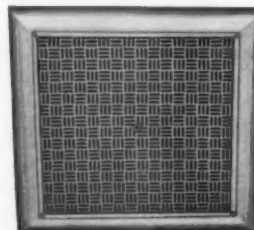
(Left) Uni-Flo Diffusers are barely distinguishable. In this unretouched photograph, taken after a year's operation, note the clean, streak-free appearance of acoustical blocks adjoining diffusers.



Uni-Flo Rectangular Ceiling Diffusers (recessed model) can be attached to standard T-bar in acoustical ceilings. Surface models are used on any type ceiling.

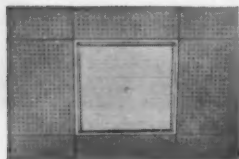


Uni-Flo Deflectors reduce turning losses and provide balanced air distribution. Installed behind diffusers or in an approach duct at the juncture with the trunk duct.



Uni-Flo Square Ceiling Diffusers are also available. Like the rectangular diffuser, the square type can be furnished in recessed or surface models.

## BLAZING THE TRAIL TO BETTER AIR DISTRIBUTION



### First with diffusers to match acoustical ceilings

Establishment of extensive laboratory facilities and publishing of reliable data on air distribution led Barber-Colman engineers into investigations of many problems facing the industry. Solutions of those problems required numerous product developments.

Among them was the introduction of square ceiling diffusers specially designed to harmonize with increasingly popular acoustical ceilings. Not only did this pioneering achievement provide satisfactory air distribution, but the diffusers eliminated troublesome smudging of adjoining acoustical blocks. Dust and dirt deposits are limited to the face of the diffuser, where they are easily removable. Immediate acceptance of the square type led to the development of the rectangular type. Send for literature kit giving complete details on both types.

**BARBER-COLMAN COMPANY, Dept. 1, 1106 Rock St., ROCKFORD, ILLINOIS, U.S.A.**





## *Arnold Kruckman's Washington Letter*

# FTC Helps Maintain Heating Standards

IN ALMOST every address, Chairman Edward F. Howrey of the Federal Trade Commission refers to the commission as "new." He means, of course, that this 40 year old agency is being, and has been, streamlined to meet the needs of modern business as well as the public. The commission's decisions affect a wide variety of industries, including the warm air heating, residential air conditioning and sheet metal field.

The sponsor of this regulating body was the late James Hammond Covington, who had a great deal of influence in 1914, both with President Wilson and with the 63rd Congress. It was Covington's ardent desire for an agency that would protect business, especially in securing fair practices, that finally brought the FTC into existence. Its powers and duties were defined to make unlawful "unfair methods of competition in commerce," and later the law was amended to make illegal "unfair or deceptive acts or practices in commerce." The word commerce was defined as applying to interstate commerce.

### Heating Industry Within FTC's Scope

The type of activity in which the FTC engages can be seen from instances involving the warm air heating industry.

Back in 1943-44, the commission made a nationwide survey of the operation of one of the largest manufacturers in the United States of household warm air furnaces to determine whether the practices of the concern in selling and servicing domestic heating plants were in violation of a number of its regulations and orders and the orders of several war agencies.

Much more recently another manufacturer of heating equipment was charged by the FTC with "unfair and deceptive" practices in the sale of furnaces, heating equipment and parts. The proceeding has been in action for a number of months and has very naturally been vigorously opposed by the organization against which the complaint is leveled. The organization denies any unfair or deceptive practices, denies knowledge of alleged improper

activities of its employees, and asserts that any acts that were committed had no support of its authority or knowledge and were in defiance of its orders and policies.

The company challenges the jurisdiction of the commission on the ground that none of the practices cited were committed in commerce, and that transactions cited were purely local in character. The commission is charged with basing its complaint on erroneous information and misrepresentation, stemming from competitors, for the purpose of embarrassing the company in the suit.

### Charge Misrepresentation

The commission's complaint, a typical example, charges that salesmen and service men obtained entry to homes by falsely representing themselves as government inspectors and asserts that some appliances of the owners were dismantled without the owners' permission and that those who dismantled them refused to reassemble what they had disturbed.

In addition, the FTC complaint charges that in some instances salesmen and service men gained admission to homes by offering free inspections, adjustments, or minor services and claimed to be technicians sent either by the federal government or state or local government to determine whether any part of the appliances used might cause poisoning or explosions. In some instances it was alleged that appliances disturbed were left for long periods of time, without proper attention or reassembly, causing the owners great distress as well as inconvenience. In other words, the FTC charges would make it appear that force and duress were used to compel a home owner to buy what he didn't need.

The decision on this hearing is still pending.

### Wide Range of Cases

The proceedings of the FTC range over many industries. Recently hearings took up charges of misrepresentation of jackets and outer coats which were said to



## Washington Letter

falsely carry the insignia of various branches of the Armed Services; misbranding of men's hose; misrepresentation in the sale of silverware; misbranding of woolen products; misrepresentation in the sale of encyclopedias; false advertisement of vacuum cleaners; misrepresentation of vitamins; and false and misleading advertising of shoes. A cease and desist order to stop business directories from clipping advertisements from other publications to mislead prospective customers and a request to stop a large manufacturer of dresses from making promotional allowances also came up.

The calendar of prospective trials or hearings includes alleged cases of price discrimination, violations of the wool products labeling act, price fixing and violations of trade practice rules. Orders to stop exclusive dealing, to stop brokerage payments, to arrest restraint of trade and trade practice rules in various industries will also be aired. The setting up of trade practice rules is one of the most active proceedings of the FTC.

### Want "Hard Core" Cases

It is obvious that the FTC proceeds against deceptive practices and investigates almost every type of business activity for the practices it prosecutes. One of its most striking jobs is to study various industries and to make reports, such as the report on the control of iron ore, which was a major undertaking during 1953.

It has a special statutory assignment in connection with the Defense Production Act, the Small Business Act and the various insurance laws as well as trade marks. Recently it made an arrangement to work with the Food and Drug Administration. It is the present objective of some of the commissioners to concentrate on "hard-core" law violators rather than direct the efforts of the staff to bringing out test cases of doubtful validity and questionable economic consequences.

### The Laws Behind It

The functional laws that give life to the FTC are the Federal Trade Commission Act, the Clayton Act, the Webb-Pomerene Export Trade Act, the Lanham Trade-Mark Act, the Robinson-Patman Act, and other laws that were either added by amendment or by regular enactment.

The Clayton Act gives the commission duties in regard to specific types of practices inimical to the preservation and protection of competition. The Robinson-Patman Act is really an amendment to the Clayton Act and is de-

signed to prevent payment of certain brokerages and commissions, except for services rendered to the party making the payment. Also it is aimed at preventing the payment by manufacturers or sellers for services or facilities to dealers or resellers in connection with the processing, handling, sale, or offering for sale of the products or commodities sold, unless payments or services or facilities are made available to all competing customers on proportionally equal terms. It was also made unlawful for any person in commerce "knowingly to induce or receive" an illegally discriminatory price. The Clayton Act also attempts to prevent interlocking directorates of competing corporations, any one of which has capital, surplus, or undivided profits aggregating more than a million dollars. Another important section of the act prohibits anyone engaged in commerce from selling goods on the understanding that the buyers won't buy from a competitor, where the effect of such a transaction would tend to create a monopoly situation.

### Acts as Policeman, Prosecutor, Judge and Jury

The Webb-Pomerene Export Trade Act, which became law in 1918, gives the commission both enforcement and administrative duties, and the Supreme Court has held it to perform duties primarily quasi-judicial and quasi-legislative. As an agency, like many other independent agencies in government, the commission finds itself in the position of being policeman, prosecutor, judge and jury in determining whether or not a business is violating the law. However, it must adhere to the Administrative Procedure Act passed by Congress several years ago, which is designed to provide a fair handling of cases. In addition, all its decisions may be appealed to the Court of Appeals and to the Supreme Court for final determination.

The commission is responsible primarily to Congress rather than the President. However, the commissioners are all appointed by the President (with the advice and consent of the Senate) and since the adoption of Reorganization Plan 8 of 1950, the chairman, who is given considerable management authority under that plan, is appointed as such by the President.

### Functions, Goals Have Shifted

It should be easy to discern why the FTC has gone through a series of minor disturbances. During the first 20 years of its existence it functioned more or less in a

# How much money and goodwill did you lose last year *servicing new heating installations?*

When you make a heating installation it's got to be right. If it isn't, you keep making service calls until it is. And, every time you make one of these calls you lose money on your new installation sale and create customer dissatisfaction. The profit you originally expected to make dwindles rapidly. And the new business you hoped to develop through good word of mouth advertising backfires.

## Why are follow-up service calls necessary on a new installation?

Sometimes the installation is not made properly. But more often, the heating unit left the factory without thorough checking and testing to make absolutely sure that every part was in perfect working order and properly adjusted.

## How can you eliminate these profitless calls?

This leads us to one of the major reasons why we believe you should seriously consider selling the Century line. Every Century heating unit is tested at our factory before we even consider shipping it to you. The job of checking every detail of operation and painstakingly making any necessary adjustment is done for you.

Consequently, when you install a Century Unit, it works perfectly. Follow-up service calls which cut your profit on the original sale are seldom if ever required. And it takes less time to install because of Century's advanced cabinet engineering.

## The Importance of the Satisfied Customer

And don't forget this. An installation that does not require follow-up service calls not only saves you money it makes money for you too. Every time a customer has to call you to come out and fix something, he's

displeased whether it costs him anything or not. And he probably tells his friends and neighbors about the trouble he's had getting his new heating plant working properly. Think how much better it is for you if instead he tells about how efficiently you made the installation and how he's never had one bit of trouble from the day it was installed. Good word of mouth advertising by your satisfied customers can produce more new business than just about anything else you can do. Century helps you guarantee customer satisfaction.

## Other Century Advantages

There are many other reasons why Century is a good line to sell. *There are exclusive Century features* like the Air Purifier-Humidifier. You choose the humidity you want, set the Humidistat dial and forget about it. The same degree of humidity is maintained automatically all winter long. *Century is a complete line.* There are over 50 different models available to meet any and all heating requirements.

But in this advertisement we want to emphasize the factory testing of all component working parts. Because, although in many respects good heating equipment is similar in design and engineering, Century takes this extra precaution to help you the dealer sell good heating installations at a good profit.

## Something you can do about it right now

Before you turn to the next page, stop and think about what this can mean to you. Then fill out the coupon below, and send it to Century Engineering Corp., Cedar Rapids, Iowa, for complete information on the Century line. We sincerely believe it's worth your looking into from a dollars and cents standpoint of making more money this year and for many years to come.



### The Century Line:

*Gas and Oil Fired Hibos, Lobos, Industrial Models, Gravity Units, Horizontals and Central Air Conditioning Units.*

Illustrated:  
Century loboy.  
Cut-away view  
showing air  
purifier-  
humidifier unit.

**CENTURY** ENGINEERING  
CORPORATION  
Cedar Rapids, Iowa

### CENTURY ENGINEERING CORP.

Cedar Rapids, Iowa

Gentlemen: Please send me complete information on the CENTURY line.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

# SIMPLER, SPEEDIER INSTALLATION WITH CHAMPION

5-ft. & 2-ft.

## SNAP LOCK PIPE



CHAMPION 90° 4-pc.  
Adjustable Elbows

Long 5-ft. lengths mean less work . . . ten lengths (50-ft.) packed in each carton means easier handling, less storage space. One man handles easily . . . snap lock stays locked, even if dropped. 4-8", 28-30 ga.



Snap-lock pipe also available in easily-handled 2' length. 3-12 inches, 28-30 gauge.

These extra-strong, easy-to-adjust elbows fit into place quickly and snugly. Like all Champion units they always fit perfectly.



### ORDER CHAMPION TODAY!

The CHAMPION line of pipe, fittings and ductwork is complete, includes perimeter fittings—a well-known CHAMPION specialty.



# CHAMPION

CHAMPION FURNACE PIPE COMPANY

211 Eaton Street, Peoria, Illinois

Phone 6-4639

## WASHINGTON LETTER —

routine manner. But with the introduction of the functional practices of the last 20 years it was constantly changing its standards and its goals. During the Truman administration, Commissioner Lowell Mason, acting as temporary chairman, tried to put the FTC on an equitable level. Conditions had developed within the organization that made his task extremely difficult, and it is for this reason, chiefly, that Chairman Howrey took over.

### Mason Is FHA Commissioner

A dual ceremony at the White House last month made Norman P. Mason commissioner of the Federal Housing Administration and created as law the Federal Housing Act of 1954. The President, in the presence of an interested group, gave Mr. Mason the oath of office and signed the act.

Mr. Mason, for a considerable time, was chairman of the construction committee of the U. S. Chamber of Commerce. He says the new act returns the law to one general pattern for insuring loans on single-family homes and one for multi-family houses and cooperative structures. He states that the average man has made the building industry the third largest in the country, and it is for him the act is primarily intended, as can be seen from the following examples:

### Cites New Provisions

- 1) The new law will require smaller down payments, extension of the maximum mortgage terms in all cases, and an increase in the amount of mortgages which may be incurred.
- 2) It provides for more liberal mortgage insurance for existing homes.
- 3) It provides for "open-end" mortgages. These permit the outstanding balance of a mortgage to be increased by amounts borrowed for repairs, improvements, etc.
- 4) It introduces changes in the program for modernization and repair. These changes place more responsibility for making a good loan on the lending institution by making it a co-insurer.

Mr. Mason says that the effect of the new legislation will be to stimulate activity in the home construction field. He thinks this, coupled with the ample supply of mortgage money, will have a very favorable effect upon the national economy. He cites the fact that the total mortgage investment in one-to-four family, non-farm homes alone, as of the end of last March, almost reached \$68 billion, according to the Federal Reserve Board.

### Three Major Aims

Administrator Albert M. Cole, head of the Housing and Home Finance Agency, which is the overall direct-





Wherever there's a furnace  
or air conditioning unit of yours . . .  
there's a filter of ours

Yes, to filter hot air from a furnace—or cool air from an air conditioning unit—you want the superior qualities and proven efficiency of AMER-glas FILTERS. Every filter is designed to meet your stiffest requirements.

Even so, it is almost incredible that after three short years on the market—and in competition with excellent and established products—AMER-glas FILTER sales are cheek-and-jowl with first place position.

Available in all standard sizes, of course . . . and if your requirements include a specially designed filter, turn to the AMER-glas staff of filter specialists. They will work with you at any time . . . using the knowledge gained through 30 years devoted exclusively to air filtering problems in the AAF laboratories. Write today for complete information about

AMER-glas FILTERS . . . produced by AAF, the acknowledged leader in air cleaning equipment.

**® AMER-glas FILTERS**

**FOR FURNACES  
AND AIR CONDITIONING UNITS**



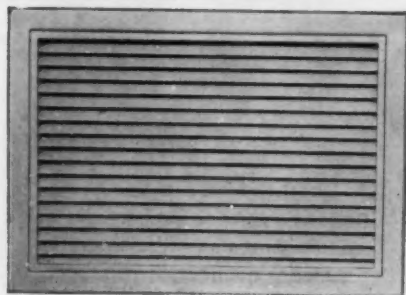
**American Air Filter**  
COMPANY, INC.

355 Central Avenue, Louisville 8, Ky.

You can't see through

**INDEPENDENT**

## NO-VISION GRILLES for Doors, Walls and Partitions



**... BUT YOU CAN SEE**

**Extra Profit Opportunities with  
the Complete Line of  
Independent Registers and Grilles**



Where ventilation without vision is desired—in doors, walls and partitions—Independent No-Vision Grilles meet every requirement. It's impossible to see through an Independent No-Vision Grille from any viewpoint.

Independent No-Vision Grilles are made in two styles—Style C, with grille core only, installed with molding as shown at left; Style R, with overlapping rim on all four sides of one surface of the grille, as illustrated above.

Independent No-Vision Grilles are made in 46 standard sizes, for openings from 8" x 6" to 30" x 24", and additional sizes can be furnished.

### SEND FOR THIS BOOK

Write for new Catalog No. 54—gives schedules of sizes, details and prices of registers and grilles for every purpose.



**Always Leading — Always Progressing**

**THE INDEPENDENT  
REGISTER CO.**

3747 E. 93rd STREET • CLEVELAND, OHIO

## WASHINGTON LETTER —

ing force of the Federal Housing Administration and other allied agencies, believes the basic philosophy of the new act is that it joins three primary aims: The eradication of slums in the United States and the re-development of the land upon which these slums have grown; public housing to provide homes for Americans with minimum income until they can acquire homes of their own at prices they can afford; and ample federally-insured credit to stimulate the building of more than a million new homes a year and the rehabilitation of existing but still sound homes.

### Construction — a Mainstay

HHFA now has an authority that was lacking — it can go ahead with the planning and building of 35,000 more units of housing than Congress had hitherto authorized. In July, expenditures for new construction rose to a \$3.5 billion total, private house building and highway construction representing the bulk. Private expenditures total \$11.4 billion for the first half of 1954 for all kinds of building. This total is 3 per cent above the 1953 level. All this led Secretary of Commerce Weeks recently at a press conference to assert "construction continues to be the mainstay of economic activity. It has been rising steadily at more than seasonal pace. Judged by the high rate of contract awards, the building surge will continue strong."

During the first seven months of the year new construction reached the record total of \$20.1 billion, according to estimates prepared by the Department of Commerce and Department of Labor. New construction activity in July was at the annual rate of \$37 billion.

### In Four Years — Another California

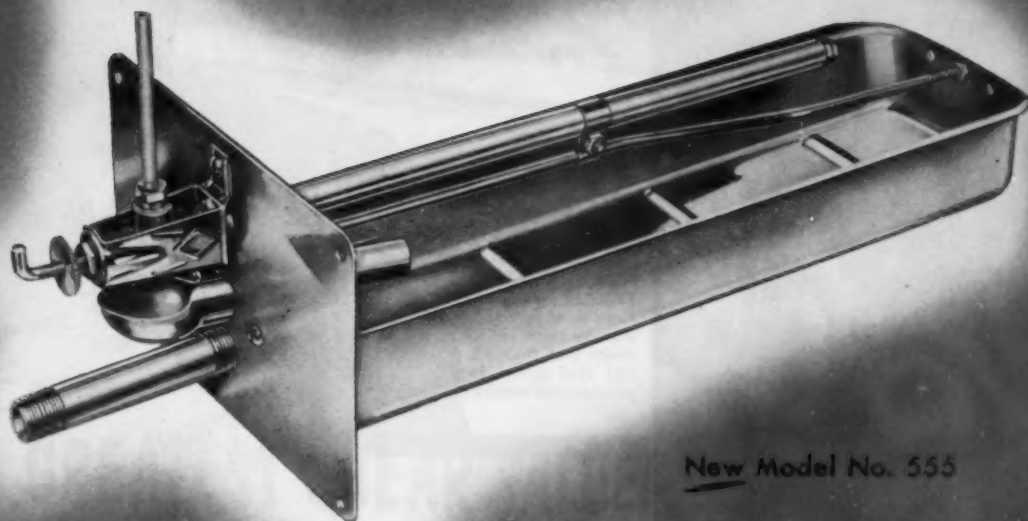
In the main lobby of the Commerce Building here there is a great electrically operated clock which ticks off the record of our population growth. It shows a net gain of one person every 12 seconds to the total U. S. population. At the time this is written the apparatus indicates the estimated population is well over 163 million, an increase of over 12 million since 1950. It is pointed out that this rate equals a new California every four years.

### To Purchase Tin Plate

The Government of Israel Supply Mission, at 250 W. 57th St., New York, N.Y., recently received an allocation of funds from the Foreign Operations Administration for the purchase of tin plate, in lots varying from 20 to 50 tons. FOA also announces that sheet metal is desired in England for various purposes ranging from exhaust silencers to fuel tanks. Detailed information is available at the Office of Small Business of the FOA, Washington 25, D. C.

# Pre-assembled . . .

FOR FASTEST INSTALLATION



New Model No. 555

# Vaporite

**AUTOMATIC DRIP HUMIDIFIER**

Saves you money on every job. Cuts *time* and *labor*. No parts to assemble — no pan leveling or trick mounting.

Cut single plenum opening — slip *completely assembled* Vaporite through hole. Fasten 5 screws. Attach to water pipe and it's ready to operate. Note: Also available, Model No. 555-C with  $\frac{3}{8}$ " O.D. x 12" copper pipe overflow.

Most important of all — it's an *automatic humidifier* with a DRIP FEED that gives you true CONTROLLED

HUMIDITY . . . Thermostat automatically measures the amount of water to go to hot pan.



**GET NEW  
FREE  
LITERATURE**

● Here is the most modern, most efficient way to put moist vapors in the home. Nationally advertised in Saturday Evening Post, Better Homes & Gardens, Small Homes Guide.

A-2

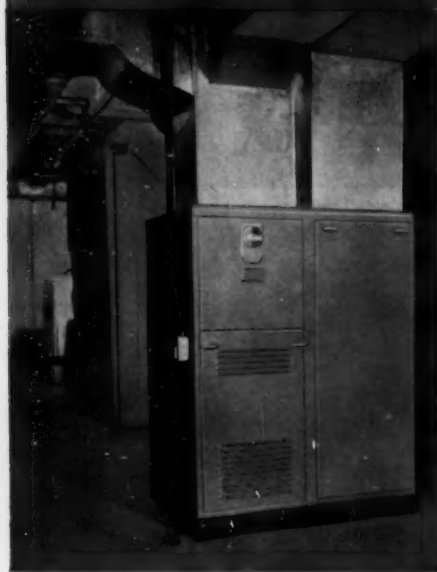
**AUTOMATIC HUMIDIFIER CO. Cedar Falls, Iowa**

# "Rheem furnaces mean fewer service calls—bigger profits"

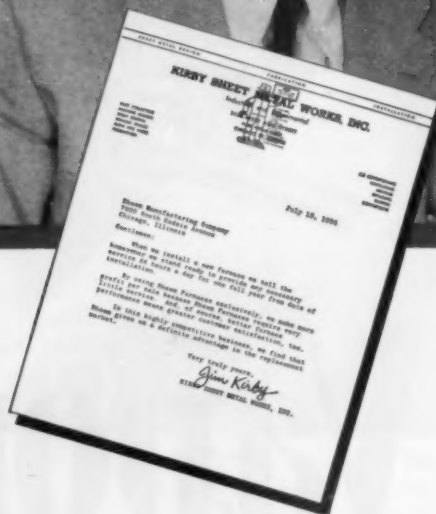
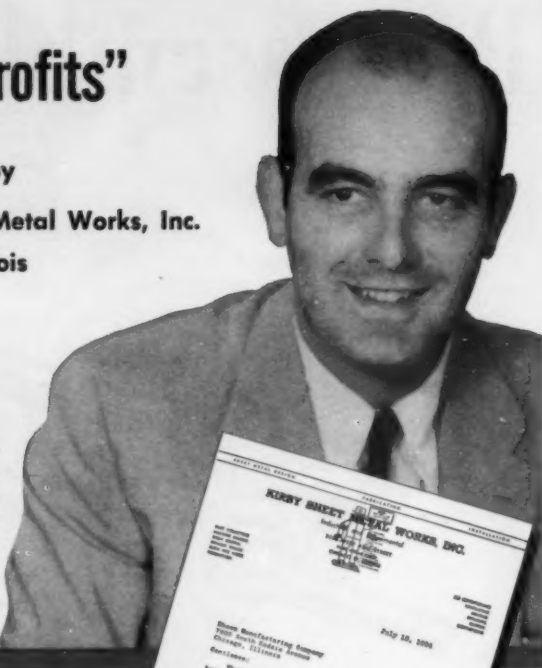


says Jim Kirby  
Kirby Sheet Metal Works, Inc.  
Chicago, Illinois

**BEFORE**  
Typical outdated furnace was inefficient, bulky, dirty. It began as a hand-fired coal furnace, was converted to stoker and then oil, but still failed to provide good service.



**AFTER**  
New Rheem "Fire-Tested" gas unit was installed and put into operation with a minimum of inconvenience to the home owner—is already paying for itself in fuel savings and heating efficiency.



Successful furnace dealers like Jim Kirby know the value of Rheem's quality and design. Here's what Mr. Kirby says:

"When we install a new furnace we tell the home owner we stand ready to provide any necessary service 24 hours a day for one full year from date of installation.

"By using Rheem Furnaces exclusively, we make more profit per sale because Rheem Furnaces require very little service. And, of course, better furnace performance means greater customer satisfaction, too.

"In this highly competitive business, we find that Rheem gives us a definite advantage in the replacement market."

You, too, can get the advantages of Rheem's "Fire-Tested" Furnace line. There's a model to fit every requirement for new and replacement installations. Write the Rheem regional office nearest you for complete details on how you can become a Rheem dealer.



**RHEEM**  
Manufacturing Company  
Sparrows Point, Maryland  
Houston, Texas  
Richmond, California  
Chicago, Illinois  
South Gate, California  
Seattle, Washington

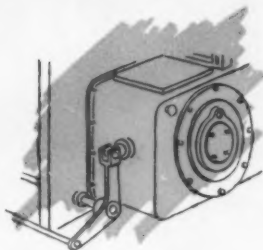






## THE GREATEST SHEAR VALUES EVER OFFERED

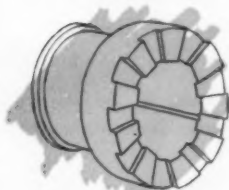
You will be pleasantly surprised to learn how little it costs to own and operate a shear with each of the fine features listed below:



Fully Enclosed Drive Unit.  
Gears Run in Oil.



Straddle Mounted Gears.  
Longer Gear Life.



9-Jaw Clutch. Positive.  
Unsurpassed in Performance.

- Fully Enclosed Drive Unit. Clutch and Gears Run in Oil.
- Straddle Mounted Gears. Accurate Meshing. Longer life.
- 9-Jaw Clutch . . . Quick Acting . . . Trouble Free.
- Built-in, Non-Repeat Unit . . . Merely Turn a Knob.
- Top Center Indicator. Visual Check on Proper Operation.
- Self-energizing Brake. No Drag on Down Stroke.
- Four-edge Blades, Each a Cutting Edge. Hollow Ground.
- Compensating Holddown. Equalized Pressure from end to end.
- Metal Finger Guards.
- Ball-Bearing. Precision Back Gauge. 1/128th inch setting.
- Front and Side Gauges.
- Massive, High Tensile Castings. Greater Rigidity. Hold Accurate Alignment Far Longer.

On Every Wysong Power Shear all of these features are Standard Equipment. Capacities range from 16 gauge through 1/4" mild steel; cutting lengths from 48 inches through 12 feet. For highest production at lowest cost, "Buy a WYSONG . . . It's MILES Ahead".

# WYSONG

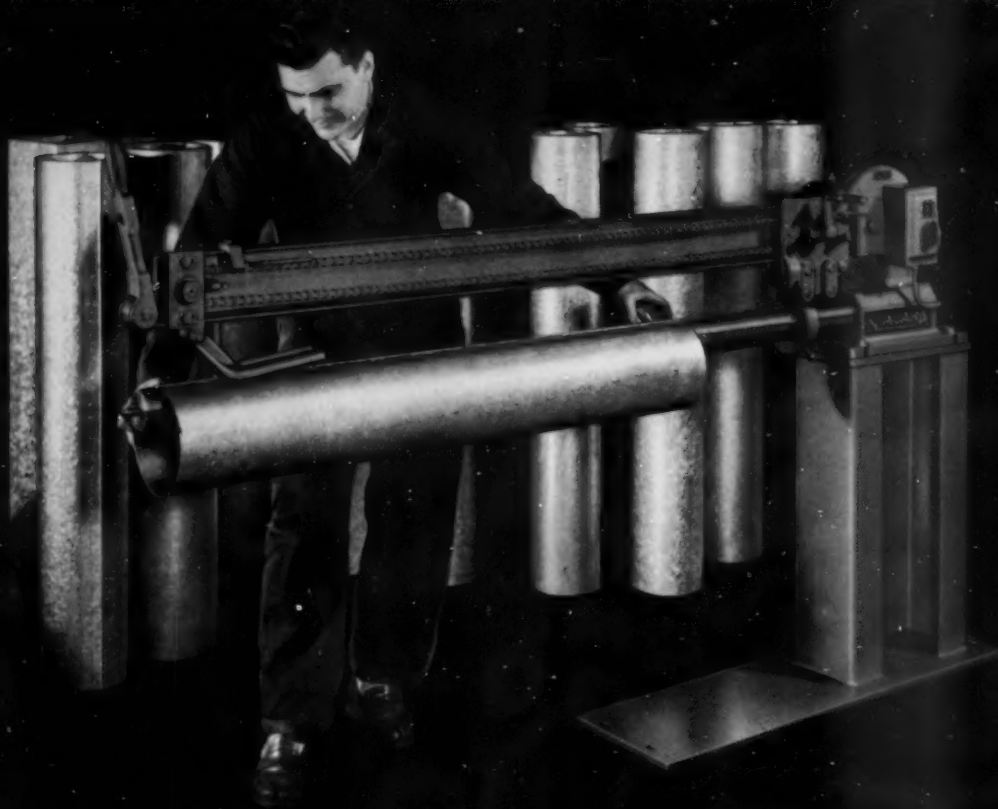
Builders of Precision Metal Working Machines

Wysong and Miles Company, Greensboro, N. C.

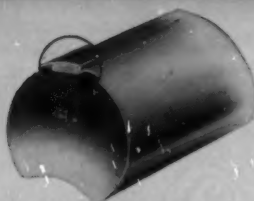
# NEW!

## NIAGARA UNIVERSAL POWER GROOVER

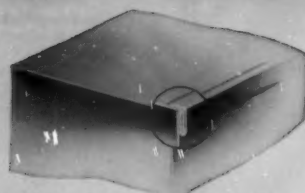
fast and versatile... for consistently accurate production



# DOES BOTH!



**SINGLE LOCK SEAM**



**PITTSBURGH LOCK SEAM**



Here's a grooving machine that will enable you to do more jobs . . . better work . . . in less time . . . at less cost. With a nominal working length of 48", the Model 48-U groover can be equipped (optionally) for closing single lock seams or Pittsburgh lock seams or both (an original Niagara feature). Power driven, it enables the operator to work hour after hour without fatigue, while eliminating the noise, delays and uncertainties of hand tools. Convenient controls provide fast, smooth operation to speed production.



### GET THE FACTS

about this new machine and other Niagara grooving and seaming equipment. Write for illustrated Bulletin 76B today. It will be sent free . . . promptly.

# NIAGARA

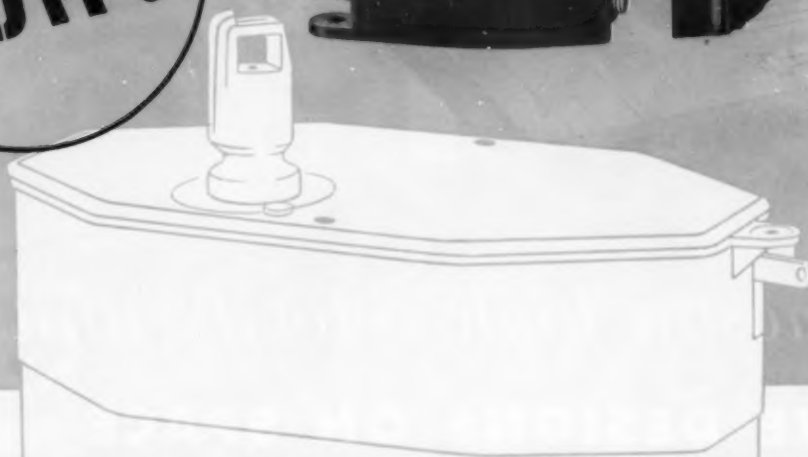
NIAGARA MACHINE & TOOL WORKS, BUFFALO 11, N.Y.

#### DISTRICT OFFICES:

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Dealers in principal U. S. cities and major foreign countries

America's Most Complete Line of  
Presses, Shears, Machines and Tools  
for Plate and Sheet Metal Work





## AUTOMATIC CONTROL

*for space heaters with*

LIMITED CLEARANCE FLOAT VALVE LOCATION

*with this new  
and smaller Detroit  
add-on control . . . . .*

The new Detroit CRC-239-PE Add-on Package provides a simple means of converting any space heater equipped with a manual CRC-239 Float Valve to room thermostat control. While it is ideal for any installation, this package is particularly well adapted for jobs where space is limited. That's because the electric add-on control stands less than 2 inches high—can be easily installed even on heaters where the fuel tank is located close above the float valve. What's more, this add-on is so designed that it may be installed without removing the float valve from the heater and it is not even necessary to let the fire go out. See your Detroit wholesaler today.

### COMPLETE PACKAGE INCLUDES

—No. 411 Room Thermostat with separable wall mounting bracket, Electrical Add-on, No. CA-240 Transformer, wire and staples.



**DETROIT  
CONTROLS Corporation**

5900 TRUMBULL • DETROIT 8, MICHIGAN

Division of AMERICAN RADIATOR & STANDARD SANITARY Corporation

Representatives in Principal Cities • Canadian Representatives in Montreal, Toronto, Winnipeg—Railway and Engineering Specialties, Ltd.

### AUTOMATIC CONTROLS for REFRIGERATION

AIR CONDITIONING • DOMESTIC HEATING • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES

*Serving home and industry*

AMERICAN STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KEWANEE BOILERS • ROSS EXCHANGERS • SUNBEAM AIR CONDITIONERS

An advertisement for Anemostat high velocity units. The background features a large, dark, rectangular unit with a grid pattern, and a smaller, lighter-colored unit with a similar pattern. In the foreground, there are three circular air diffusers of different sizes and a square air diffuser. The text is overlaid on the dark rectangular unit.

# *Anemostat high velocity units* **HAVE DESIGNS ON SPACE**

Floor to floor height can be kept to a *minimum* and usable floor space to a *maximum* with Anemostat High Velocity Air Conditioning. • HV units, used with smaller than conventional ducts, save space, and money too. They substantially reduce pounds of sheet metal required, can be installed faster, with less labor. • HV Manual 48 contains specification data on 7 types of Anemostat High Velocity units, for all engineering and architectural requirements. Write for free copy.

**ANEMOSTAT®**

**DRAFTLESS Aspirating AIR DIFFUSERS**

**ANEMOSTAT CORPORATION OF AMERICA**

10 EAST 39th STREET, NEW YORK 16, N. Y.

REPRESENTATIVES IN PRINCIPAL CITIES

*"No Air Conditioning System Is Better Than Its Air Distribution"*



# WHAT THE ASSOCIATIONS ARE DOING



RECEPTION COMMITTEE checks final registration at the Fox Valley association's annual field day. They are (l. to r.) Fred Lamp, George Bushman, Clayton Evelien, Fred Nolting and Joe Strotz



BARBER SHOP QUARTET sings old favorite melodies and provides the entertainment following the steak dinner enjoyed by the Fox Valley group

## Fox Valley Has Field Day

A SPORADIC RAIN may dampen the earth but it takes more than a rain to dampen the spirits of the members of the Fox Valley Furnace and Sheet Metal Contractors Association of Illinois and their friends when they turn out for their annual field day. The program called for 18 holes of golf, horseshoe pitching and a steak dinner. The rain eliminated the horseshoe games and reduced the number of golfers, but those who spent the afternoon in the club house found that early evening television programs can be enjoyed by businessmen and that pinochle and cribbage can still be interesting. Those who didn't watch TV or play cards found that "talking shop" can be both educational and interesting when the pressure of everyday business activity has been removed.

The steak dinner was climaxed by excellent entertainment provided by a well known barber shop quartet (Elmer Burkland, bass, is a member of the association). They sang many long-time favorites.

### Savings for New York Contractors

THE ROOFING AND SHEET METAL Crafts Institute reports that workmen's compensation benefits in New York State were increased on July 1, while on the same date the rates for compensation insurance went down 8.3 per cent. Announcement of the reduction in rates was made by Alfred J. Bohlinger, Superintendent of Insurance. He said the cut amounted to an annual saving of \$42,500,000—made up of a \$25,000,000 drop in rates and an absorption of the cost of increased benefits amounting to \$17,500,000.

Two factors enabled the state to authorize the reduction in rates, Mr. Bohlinger explained. One was the

marked improvement in loss experienced during the last year; the other was the program suggested by the Moreland Act commissioner, Arche O. Dawson, who was appointed by Governor Dewey to study the cost of workmen's compensation in the state.

The higher benefits amount to \$36 a week in disability cases and \$40 in death cases. Rate reductions range from 9.8 per cent for contracting employers to 0.5 per cent for the federal government. The final setting of the new rate level was made at a conference attended by Mr. Bohlinger, Mr. Dawson, members of their staffs and representatives of the Compensation Insurance Rating Board. The board is the rate making agency for all private insurers writing workmen's compensation insurance in the state.

The study of the cost of workmen's compensation, including insurance rate making procedures, is being continued by the Moreland Act Commission.

### Curtis Heads Blower Manufacturers

OFFICERS ELECTED at the annual meeting of the Air Conditioning Blower Manufacturers Association held recently at the Edgewater Beach Hotel in Chicago include Walter A. Curtis, president; Homer F. Brundage, vice president; and F. W. Brundage, secretary-treasurer.

Gary Baker, chairman of the engineering committee, reported on four projects undertaken during the past year. These projects include: 1) completion of a method of determining pressure losses through air conditioning apparatus; 2) development of a unified method of test procedure; 3) development of a unified method of designing blowers and blower parts; and 4) completion of



**Time and material** for chimney construction is being cut 30-50% on average new housing installations with the Van-Packer Packaged Masonry Chimney. It goes up with 2 ft. genuine masonry flue sections — installs with one man in 3 hours or less, with two men, 1½ hours. Ceiling or floor suspended (under

construction above), the chimney installs directly over furnace saving valuable floor space. No special skills required. Sections made of ¾" fire clay tile inner lining, 3" vermiculite concrete insulating wall, and cement-asbestos jacket. Chimney's insulating value equal to 24" solid brick wall.

## Genuine masonry Van-Packer chimney goes up by sections in 1½ hours



**Easy-to-use** plastic squeeze bags provide the acid-proof cement permanently sealing each joint (above). Van-Packer Chimney withstands 2100° F., is UL listed for zero clearance.



**Approved** for all fuels—coal, oil, gas—the Van-Packer Chimney is FHA accepted, UL listed, approved by major building codes. "Brick-Panel" Housing has "buyer acceptance" of conventional brick.



**Completely packaged**, all parts needed delivered to the job. See your local classified telephone directory for listing of Van-Packer distributor. If none is listed, write Van-Packer Corp.



**Van-Packer**

**PACKAGED MASONRY CHIMNEY WITH "BRICK-PANEL" HOUSING**

Van-Packer Corporation • Bettendorf, Iowa

Send for all the facts on the Van-Packer Packaged Masonry Safety Chimney. Ask for Bulletin 111-AF28.





TIFED AT THE 18TH HOLE are (l. to r.) Trig Johansen, Lars Schulein, Will Pennington and Jim Shanell

a set of installation and service instructions for blowers used in heating and air conditioning systems.

Heading the engineering committee for the coming year will be R. D. McCallum. Homer Brundage will be chairman of the publicity committee.

### Second Tourney for Chicago Golfers

THE CHICAGO WARM AIR Golf Association's second tournament of the 1954 season was held July 27th at River Forest Country Club, Elmhurst, Ill., with 56 members and guests attending. Arthur McLain, Jones Sheet Metal Shop, La Grange, Ill., was the winner of the low net score prize and was awarded the golden trophy by Mel Jackson, Grant Wilson, Inc., president of the association.



WINNER OF the low score prize, Arthur McLain (right) receives congratulations and the trophy from Mel Jackson, president

Prize winners, in order of scores (computed by the adjusted scoring system), were announced by W. J. Pennington, chairman of the awards committee, as follows:  
*Low Net*

Arthur McLain—Jones Sheet Metal Shop  
E. H. Frick—Elgin, Ill.  
Frank Schroeder—Illinois Iron and Bolt Co.  
Ray Hubbs—Cuyler Sheet Metal Co.  
Warren Barr, Jr.—Warren Barr Supply Co.  
James P. Gats—Gats Heating Co.  
Gunnar Olsenius—U. S. Steel Co.  
Mel Jackson—Grant Wilson, Inc.  
H. A. Ziehm—H. A. Ziehm Co.  
R. P. Johnson—Atomatic Inc.

(Please turn to page 214)

### Coming Events

Sept. 28—Chicago Warm Air Golf Association, golf meet. Ruth Lake Country Club. Melvin A. Jackson, President, c/o Grant Wilson, Inc., 141 W. Jackson Blvd., Chicago.

Oct. 11-13—American Gas Association, annual convention. Atlantic City, N. J. H. Carl Wolf, Managing Director, 420 Lexington Ave., New York 17.

Nov. 29-30—National Warm Air Heating and Air Conditioning Association, board and committee meetings. Cleveland Hotel, Cleveland. George Boeddener, Managing Director, 145 Public Sq., Cleveland 14.

Dec. 1-2—National Warm Air Heating and Air Conditioning Association, annual convention. Cleveland Hotel, Cleveland. George Boeddener, Managing Director, 145 Public Sq., Cleveland 14.

Jan. 20-22—National Heating Wholesalers

Association, winter meeting. Bellevue-Stratford Hotel, Philadelphia. C. Stuart Rambo, Executive Secretary, 228 N. LaSalle St., Chicago 1.

Jan. 24-27—American Society of Heating and Ventilating Engineers, 61st Annual Meeting. Bellevue-Stratford and Benjamin Franklin Hotels, Philadelphia. A. V. Hutchinson, Secretary, 62 Worth St., New York 13.

Jan. 24-28—International Heating and Ventilating Exposition—the Air Conditioning Exposition. Commercial Museum, Philadelphia. Managed by the International Exposition Co., 480 Lexington Ave., New York 17, and sponsored by the ASHVE.

Feb. 24-25—Michigan Heating & Sheet Metal Association, annual convention. Bancroft Hotel, Saginaw. N. J. Biddle, Secretary, 3035 E. Grand Blvd., Detroit 2.

# Waterbury UNVEILS PROMOTION TO HELP DEALERS CRACK REPLACEMENT MARKET



Does  
Your Home  
Have  
**PCC?**

"Does your home have PCC?" is the stimulating question Waterbury Dealers will be asking furnace replacement prospects in the near future. The question will be posed by mailing pieces, door hangers, and window streamers. Waterbury Dealers and their salesmen will be ready to tell the prospects how PCC can be cured.

Specific, practical selling methods and effective merchandising aids are a part of the PCC Campaign, designed to give each Waterbury Dealer all the help he needs to get his full share of the replacement market. Add this type of promotion to the quality products and sound factory-distributor-dealer policy offered by Waterman-Waterbury, and it's easy to understand why association with Waterbury is good business.

## The Waterman-Waterbury Co.

1122 JACKSON STREET N. E.

MINNEAPOLIS 13, MINNESOTA

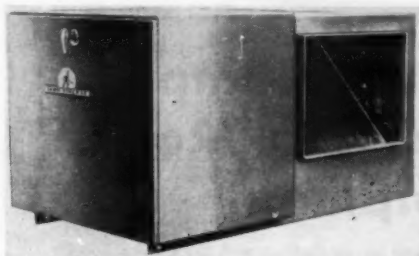


# EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available, see this month's New Literature department.

## Central Air Conditioning Units

TWO NEW central air conditioning units for domestic and light commercial applications — Iron Fireman Mfg. Co., 3121 W. 106th St., Cleveland 11. One unit, designed to match the company's oil or gas fired high-boy furnace, is available in a 2 ton capacity. An inlet



air opening is provided in the side panel for connection with the furnace or a return duct. The second unit, designed for use with oil or gas fired suspended furnaces, is offered in 2 and 3 ton sizes. Air circulation and filtering are provided by the furnace or by a separate blower. Both units are available with or without cooling towers and with single or three phase compressor motors.

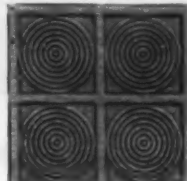
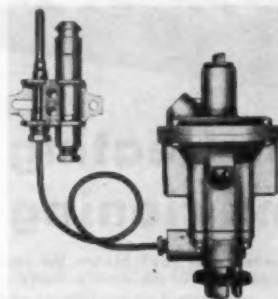
## Furnaces, Burners, Incinerator

COMPLETE NEW LINE of "Freeman" home heating equipment — Illinois Iron & Bolt Co., W. Main St., Carpentersville, Ill., Gas, oil and coal fired warm air furnaces are offered in highboy, counterflow and basement models. All models are finished in baked white enamel. Another product is a gas conversion burner that combines convected, radiant and infra-red heat, resulting in more usable heat, according to the company. The new "Dial-O-Meter" low pressure oil burner is designed to operate at high efficiency with minimum fuel requirements and to eliminate clogging and other service problems. An automatic gas fired incinerator also is available. It handles all types of garbage (bones, trash, etc.).

## Patterned Sheet Metal

PATTERN C-1-S "Rigid-Tex" metal sheets designed for use as functional trim with decorative appeal — Rigidized Metals Corp., 699 Ohio St., Buffalo 3. The pattern combines diminishing circles within squares. It conceals fingerprints, scratches and smudges, provides increased reflectivity and eliminates glare and surface distortion, the company states. The pattern is offered in a variety of finishes, including two tone effects and polished and painted finishes. The pat-

terned metal is designed to provide rigidity, high tensile strength, and weight reduction. Maximum width is  $7\frac{3}{4}$  in.; maximum thickness, 0.025 in.; and maximum pattern depth, 0.005 in. (measurements based on Type 302 annealed stainless steel). This pattern is furnished in solid or perforated metals.



Above: Patterned Sheet Metal

Left: Regulator-Pilot Unit

## Regulator-Safety Pilot Unit

MODEL SR-100 combination regulator and thermoelectric safety pilot for use with gas fired furnaces, wall heaters, space heaters, etc. — Thermac Co., 800 E. 108th St., Los Angeles 59. It is AGA certified for use with natural and manufactured gases. The unit is designed to effect savings by reducing installation costs and eliminating the need for an electric relay or separate automatic pilot unit. It is intended for use on forced air and gravity furnaces and unit heaters with capacities up to 85,000 Btu per hr with natural gas. The manual reset ring is pulled down to load the thermocouple. The unit may be tapped on either side for a pilot take-off.

## Oil Burner with Redesigned Diffuser

MODEL JC gun type oil burner with capacities of 0.50 to 2.75 gph, featuring a non-adjustable, stainless steel, multi-jet diffuser — Toridheet Div., Cleveland Steel Products Corp., 16025 Brookpark Rd., Cleveland 11. The diffuser (illustrated) can withstand temperatures



up to 1800 F and produces unusually quiet combustion and high CO<sub>2</sub> the company states. The adjustable base

# You've Got The *Selling Edge* on Competition with *Luxaire*

## The Complete Line of Heating and Year 'Round Air Conditioning Equipment

As a Luxaire dealer you'll feature the largest — the most complete — the most versatile line of heating . . . year 'round air conditioning and summer cooling equipment available. You have everything to meet any competition! You can fill any order!

As a Luxaire dealer you can cash-in on the big year 'round air conditioning market, and likewise you can cash-in on the limitless demand for the changing over of forced air systems into year

'round air conditioners with the Luxaire Add-On Summer Cooling Units.

So — from all angles and feature for feature, Luxaire excels in quality, performance and selling features! That's why Luxaire dealers have the big selling-edge over all competition! Let your Luxaire jobber show you how easy it can be for you to outsell competition with Luxaire! Don't delay — it may cost you money — see him today!

**Most Units  
Approved for  
Either  
GAS or OIL**

**Popular Sizes  
in Year 'Round  
and Summer  
Air  
Conditioning  
Units**



Winter Air Conditioning  
Units approved for  
either Gas or Oil.



Counterflow Units  
approved for either  
Gas or Oil.



Utility Units  
approved for  
either Gas or Oil.



Gravity Furnaces  
approved for either  
Gas or Oil.



Year 'Round  
Air Conditioners  
approved for  
either Gas or Oil  
2 and 3 Ton Cooling.



Summer  
Cooling Units  
2 - 3 and  
5 Ton.



Incinerators  
with or without  
Gas Burner.



Unit Heaters  
Gas Fired  
4 Sizes



Gas Conversion  
Burners  
3 Sizes



Horizontal  
Furnaces  
Gas Fired . . .  
Oil Fired

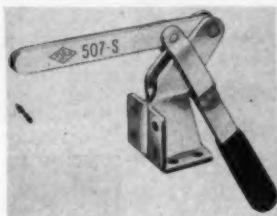
THE *Luxaire* C. A. OLSEN MANUFACTURING COMPANY . . . ELYRIA, OHIO  
HEATING & AIR CONDITIONING UNITS

## equipment developments (Continued)

is removed to convert the burner to flange mounting (using a cast flange available as optional equipment). Other new features are simplified air adjustment and an improved blower wheel with an integral hub functioning as part of the flexible coupling to the fuel unit.

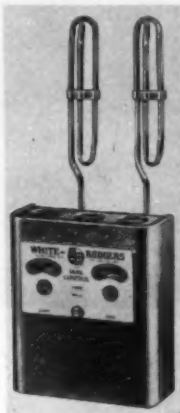
### Warm Air Controls

WARM AIR CONTROLS available with elements on capillaries of 24, 30 and 36 in. — White-Rodgers Electric Co., 1209 Cass Ave., St. Louis 6. The contact structure now on the limit controls enables a single control to handle all voltages from millivolts to 230 volts, simplifying control inventories, since one type will take care of all gas and oil installations, the company states.



Above: Clamp

Right: Warm Air Control



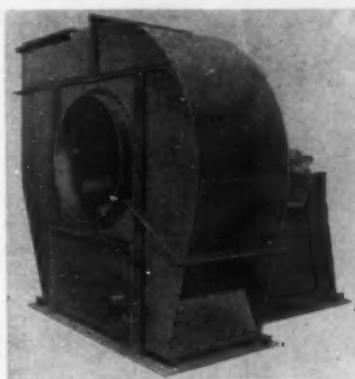
### Bench Toggle Clamps

MODEL 507 "DESTACO" toggle clamps designed to provide complete clearance and low silhouette advantages — Detroit Stamping Co., 350 Midland Ave., Detroit 3. The clamps feature a special action which flicks the spindle and holds the bar completely away from the working surface, making clamps especially applicable where sheets of metal or plastic are positioned for light duty processing, the company states. As the spindle and holding bar lie flat and away from working areas when opened, there is less chance of injuring clamps from contact with heavy suspended production tools, according to the manufacturer. Mounting surfaces are on the front and bottom of each clamp for both horizontal and vertical use. U bar type clamps are offered for use where there are no welding facilities; other clamps (shown) have solid carbon-steel holding bars with a positionable bolt retainer which may be welded to the bar at the desired angle.

### Industrial Fans

TYPE XL INDUSTRIAL air and material handling fans ranging in inlet diameter size from 11 through 60 in., with pressures up to 18 in. static pressure and volumes up to 130,000 cfm — Clarage Fan Co., North & Porter

Sts., Kalamazoo 16. The smaller sizes are particularly adapted to diversified applications, the company states. They can be furnished with three different interchangeable wheels and are reversible for either clockwise or



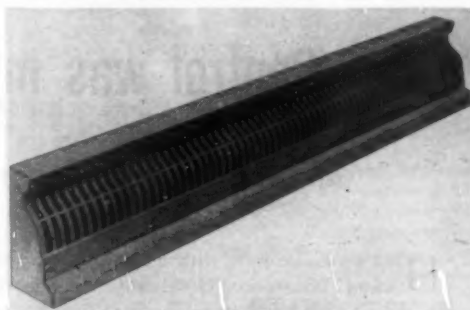
counter-clockwise rotation when equipped with rim or open type wheels. The larger sizes feature a base angle construction extending to the foundation line to provide strength and rigidity; therefore, these sizes are not adjustable as to discharge.

### Conductor Elbows and Shoes

ONE PIECE CONDUCTOR elbows and shoes now hot dipped in western zinc and bonderized before being packed for shipment — The Ferdinand Dieckmann Co., P. O. Station B, Cincinnati 22. This bonderizing prepares the galvanized surface for painting after installation, the manufacturer states.

### Baseboard Diffuser

"THERMO-30" 30 in. baseboard diffuser designed for perimeter heating and cooling as well as other standard applications — Gerwin Industries, Inc., 200 Spring St., Michigan City, Ind. It is particularly applicable as a return air register because it eliminates cutting into plaster, stud plate and joist header, the



company states. The diffuser has over 37 sq in. of free area. Its high capacity is 12,000 Btu for heating and 5000 Btu for cooling, according to the manufacturer. For installation, the bottom is scored at the rear edge and breaks off to the size of the boot after two cuts with straight snips. The opening can be cut anywhere in the unit and any size boot may be used.

(Please turn to page 165)



*Zone Control home of Mr. & Mrs. Herbert Bucklen, Elkhart, Indiana*

## **"This customer wanted the ultimate in comfort—Honeywell Zone Control was my answer"**

**says Heating Dealer Dewey Shreiner, of Shreiner and Sons, Elkhart, Indiana**



"**H**ERE's a house built with perfect comfort in mind! We worked closely with the owners in the first planning stages because they had a lot of definite ideas about the kind of comfort they wanted.

"They requested the very latest equipment for heating, and wanted the control system that would provide whole-house comfort.

"Naturally, the best answer was Honeywell Zone Control. Then we could assure *the ultimate* in comfort *all over the house*.

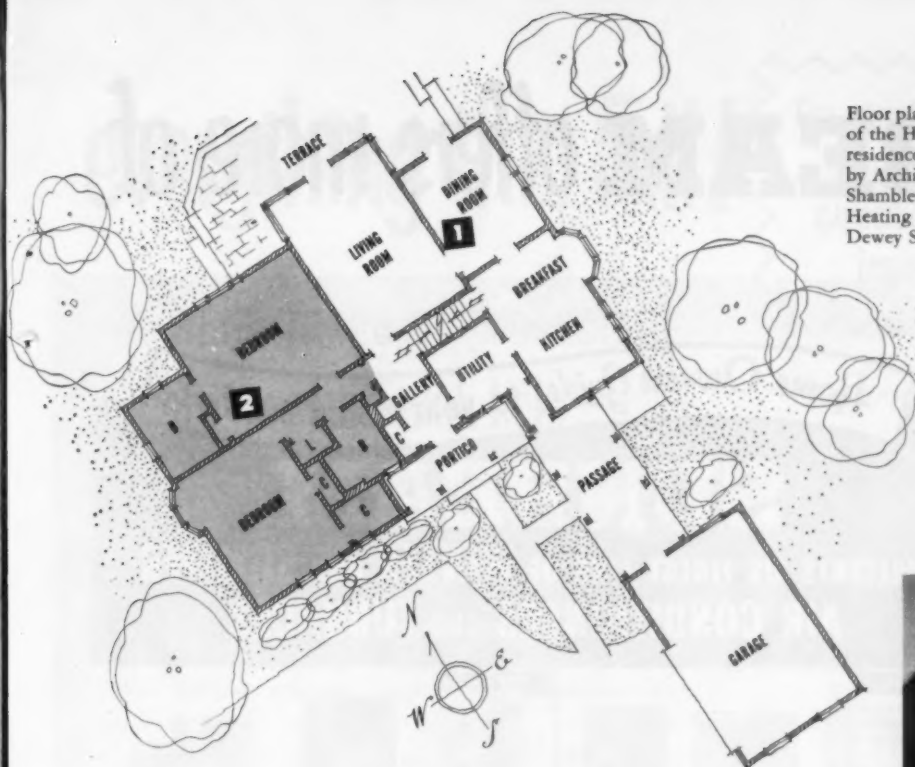
"We like to work with Zone Control because

it's so flexible. It's easy to adapt for different family living habits when you can use separate thermostat systems.

"We can handle almost every heating situation with Zone Control. We can design the system for the type of construction, and to meet such conditions as wind, sun, exposure, glass areas, or zero weather.

"We have a long list of *satisfied* users of Honeywell Zone Control. We can assure *whole house comfort* with this dependable system. It really gives *the ultimate* in comfort!"





Floor plan showing zoning of the Herbert Bucklen residence. House designed by Architect N. Roy Shambleau of South Bend. Heating zoned by Dealer Dewey Shreiner.

**"No ordinary one-thermostat system would do for this smart new home!"**

*says Dealer Dewey Shreiner*



*Dewey Shreiner, right, with Honeywell sales engineer I. M. Slapicka*

"When the Bucklens ordered the very latest in modern comfort equipment, we knew no ordinary *one*-thermostat system would do. That's why we recommended Honeywell Zone Control.

"We divided their home into two zones—one for the living-service area, and one for the sleeping area.

"One Honeywell Thermostat controls Zone 1, which includes the living room, dining room and kitchen. This separate thermostat compensates for the extra warmth from the living room fireplace and

the kitchen, and for warm sun through the living room windows. It assures the Bucklen family and their guests *even* comfort at all times.

"The separate thermostat for Zone 2 controls the bedrooms. It keeps this area comfortable during the day, and allows cool sleeping at night.

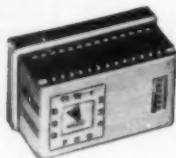
"And the Zone 2 thermostat can be set back to save fuel when the bedrooms aren't in use.

"Honeywell Zone Control is a real profit item for any heating dealer."

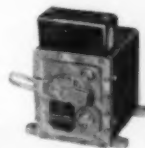
**Honeywell has controls for any type zoning job...**



**Electronic Weathercaster**—located outside the house. It senses weather changes and signals the electronic system indoors automatically.



**Electric Chronotherm**—famous, fully automatic clock thermostat. Provides night shut-down, automatic morning pick-up for 24-hour control.



**Modutrol Motor**—comes in several versions. Gives fast, accurate control of dampers and valve assemblies... many years of trouble-free service.

For complete information and application data on Honeywell Zone Control, call the Honeywell office nearest you. Or... write Honeywell, Dept. AA-9-187, Minneapolis 8, Minnesota.

MINNEAPOLIS  
**Honeywell**

112 OFFICES ACROSS THE NATION



*First in Controls*

# SUNBEAM offers more of

*Home Owner's Guide to year 'round comfort*

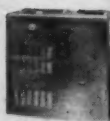
## SUNBEAM

PRESENTS ITS FINEST LINE OF WINTER AND SUMMER  
AIR CONDITIONERS AND FURNACES

### FOR GAS



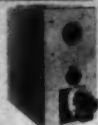
**MORAWK**  
Gas furnace and  
8 coils, \$2,500 - \$30,000 Btu input



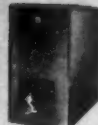
**SENICA**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**WINTERWAY GAS**  
Gas furnace and  
8 coils, \$1,500 - \$12,000 Btu input



**WINTERWAY OIL**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**WINTERWAY OIL**  
Gas furnace and  
8 coils, \$1,500 - \$12,000 Btu input



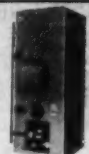
**WESTMORELAND**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**NEW WYANDOTTE**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**WINTERGLO GAS**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**WINTERLINE GAS**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**WINTERGLO OIL**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**WINTERLINE OIL**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**OLANDO**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**SHAWNEE**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**PAWNEE**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**NAVAHO**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input

### FOR ALL FUELS



**ARLINGTON**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**ARLINGTON**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input



**ARLINGTON**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input

### MAYFAIR SUMMER AIR CONDITIONERS



**MCA-5**  
Refrigerant cooling unit,  
automatic and manual,  
in floor or on wall, 10, 15 and 20 tons



**MCA**  
Refrigerant cooling unit,  
automatic and manual,  
in floor or on wall, 10, 15 and 20 tons



**MCA**  
Refrigerant cooling unit,  
automatic and manual,  
in floor or on wall, 10, 15 and 20 tons



**MCA**  
Refrigerant cooling unit,  
automatic and manual,  
in floor or on wall, 10, 15 and 20 tons



**MAGNE-FILTER**  
Air Cleaner  
Removes dirt, dust, lint, pollen,  
smoke, odors, etc. for clean, healthy  
living conditions.



**REPLACEMENT FILTERS**  
A highly efficient replacement  
filter for all standard sizes of  
MAGNE-FILTER air cleaners.



**STANFLAME**  
Gas furnace and  
8 coils, \$2,500 - \$10,000 Btu input

**AMERICAN-Standard**  
**SUNBEAM**

WINTER AND SUMMER AIR CONDITIONERS

# everything this Fall!

## -a wider range of products... more promotional help...

■ Today's new, improved and expanded Sunbeam line is your opportunity to really become *the* heating and cooling equipment headquarters of your community. For here is a line of top quality products *so complete*—in number of models, types, sizes, choice of fuels, and applications—that you can easily take care of *any* requirement.

Yes, Sunbeam offers you the products you need and they are *competitively priced to sell readily on today's market*. And Sunbeam backs you up with the kind of selling aids it takes to attract prospective customers . . . and to close the sale! Ads in national magazines, cooperative advertising in newspaper, radio and television, identification signs for your store, window streamers, decals and wall posters, book matches, point-of-sale and direct mail material.

## SUNBEAM means BIGGER BUSINESS for even the smallest dealer!

You don't have to have a large store with a big display room to do well with the Sunbeam line. For example, you can sell from the attractive wall poster shown here as well as from point-of-sale literature, and your nearest Sunbeam distributor can quickly fill your orders. For details, get in touch with him now. He is listed under "Furnaces" or "Air Conditioning" in the Yellow Pages of your phone directory. **Sunbeam Air Conditioner Division, American Radiator & Standard Sanitary Corporation, Elyria, Ohio.**

For variety of models and types  
... for wide range of sizes and  
capacities you can't beat the  
famous **SUNBEAM** line!

### GAS FIRED WINTER AIR CONDITIONERS

- Basement Type  
14 sizes—80,000 to 300,000 Btu. input
- Utility Type  
10 sizes—50,000 to 200,000 Btu. input
- Counterflow Type  
3 sizes—95,000 to 125,000 Btu. input
- Horizontal Type  
4 sizes—60,000 to 120,000 Btu. input

### OIL FIRED WINTER AIR CONDITIONERS

- Basement Type  
9 sizes—80,000 to 330,000 Btu. at register
- Utility Type  
3 sizes—79,000 to 102,000 Btu. at bonnet
- Counterflow Type  
3 sizes—79,000 to 102,000 Btu. at bonnet
- Horizontal Type  
3 sizes—93,900 to 115,000 Btu. at bonnet

### WINTER AIR CONDITIONERS FOR ALL FUELS

- 6 sizes—86,100 to 177,000 Btu. at register

### GAS FIRED GRAVITY FURNACE

- 4 sizes—80,000 to 150,000 Btu. input

### GAS FIRED FLOOR FURNACE

- 3 sizes—25,000 to 50,000 Btu. input

### GRAVITY FURNACES FOR ALL FUELS

- Square jacket  
4 sizes—76,800 to 100,800 Btu. at register
- Round jacket  
6 sizes—67,800 to 139,300 Btu. at register

### CONVERSION BURNERS—GAS and OIL

A full range of models

### RESIDENTIAL SUMMER AIR CONDITIONERS

- 4 models—2, 3 and 5 hp.

### COMMERCIAL SUMMER AIR CONDITIONERS

- 3 sizes—2, 3 and 5 hp.

### MAGNE-FILTER ELECTROSTATIC AIR CLEANER

- 8 sizes—covering every heating and cooling unit installation.

### REPLACEABLE FILTERS

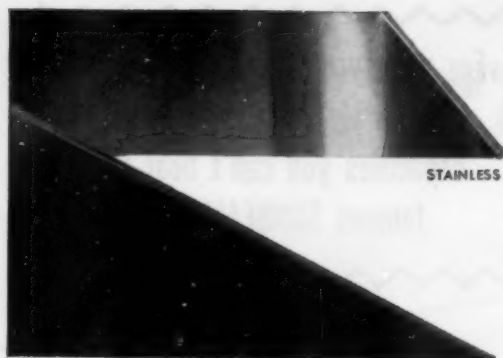
to fit any air conditioner, summer or winter



**AMERICAN-Standard**  
**SUNBEAM AIR CONDITIONER DIVISION**  
ELYRIA · OHIO

Executive Offices: 40 W. 40th Street, New York 18, N. Y.

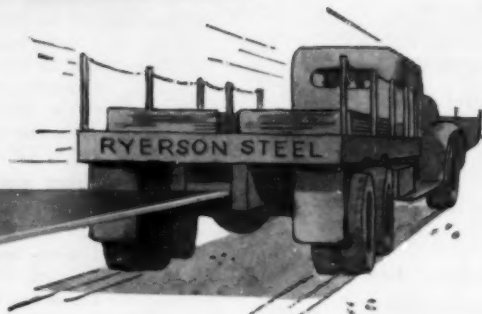
Serving home and industry: AMERICAN-STANDARD • AMERICAN BLOWER • CHURCH SEATS & WALL TILE • DETROIT CONTROLS • KENAWEE BOILERS • BOSS EXCHANGERS • SUNBEAM AIR CONDITIONERS



STAINLESS

HOT ROLLED

COLD ROLLED



## Sheets Quickly

GALVANIZED



EXPANDED METAL

### more than 20 kinds in stock

You get the sheets you need without delay when you call your nearby Ryerson plant. That's because we carry the world's largest stocks—an unusually wide range of gauges and pattern sizes in more than 20 types. Whether you need a single sheet or a truck-load, pattern size or cut-to-order, we can assure you of immediate delivery.

Ryerson galvanized sheets are a special tight-coated type that form readily without peeling or flaking—are bright and clean with uniform spangle. Workable Ryerson stainless is all time-tested Allegheny Metal, with the high quality finish that will please your most particular customers. Ry-Ex Expanded Metal is available in two types, standard and flattened, both types with all sharp edges removed.

**MACHINERY AND TOOLS.** And when you need metal-working machinery or tools, again you can depend on Ryerson. Your nearby Ryerson plant supplies—and unreservedly guarantees—every type used by sheet metal shops.

So, for fast action on your every requirement . . . call Ryerson.

## RYERSON STEEL

*Principal products: Carbon, alloy and stainless steel, bars and band iron, angles and channels (black and galvanized), welded and seamless tubing, plates, sheets and strip, etc.*

JOSEPH T. RYERSON & SON, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CHARLOTTE, N. C. • CINCINNATI • CLEVELAND  
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO • SPOKANE • SEATTLE



## Goal: Lower Operating Costs

AS WE VISIT warm air heating and residential air conditioning dealers and sheet metal contractors around the country, one of our queries is always related to operating expenses and how they are being kept at a minimum. We receive a lot of answers, some applying only to a certain type of business operation, others applying to a specific item, but in general we find that the aggressive dealer is trying a number of methods for keeping overhead costs down.

Due to the competitive prices of equipment and local market conditions, there is little that a dealer can do to gain a price advantage. Thus, the financial success of a business must rest on other factors, such as an accurate analysis of operating expenses, the carrying out of any plans to eliminate excessive waste in time and material that might result from such an analysis, and a continual overhauling of each business operation to find better ways of controlling expenditures.

Some good methods to follow when looking for weak spots are:

1. Compare the cost of indirect labor and other service expenses against direct labor costs. If indirect costs seem too high, this may imply lack of planning in ordering parts, tools, etc.
2. Break down work procedures into separate operations; determine the time involved in each operation; and look for the reason why certain operations take longer on some work assignments than on others. A progress record of each job—both in the shop and out—will reveal significant figures.
3. Examine the question of where the job can best be performed—can it be done more economically and more efficiently on the job or in the shop?
4. Strive toward standardization. This will help fill in time when work is slack and gain time when the pressure of too much work exists.

These are the rules that many warm air heating and residential air conditioning dealers and sheet metal contractors are following to reduce overhead costs.



THE 35 TRUCKS now operated by the Payne company make about 25,000 service calls a year



THIS BUILDING in Beverly Hills has been the firm's headquarters since 1949

## Quality

- installation
- servicing

By Robert F. Welch

## Produces Quantity

. . . of heating and cooling business  
for a well known 40 year old firm

FORTY YEARS is a long time for a heating firm to spend serving any community — an especially long time in southern California, where there are few business organizations dating back that far. El Roy L. Payne, head of the E. L. Payne Heating Co. of Beverly Hills and Pasadena, started in business with his father in 1915. In addition to serving customers directly in the retail business, Mr. Payne has made many important contributions to the development of the industry itself. He pioneered in promoting multiple-furnace installations for residential warm air heating and perfected an important type of heating control. Gordon Payne, his son, represents the third generation of the family participating in the business.

### No Compromise on Quality

There's a motto hanging in every office of the company reading, "Only the *Rich* Can Afford Poor Heating." That saying represents the basic business philosophy on which this long established organization has grown. There has never been any compromise with quality on Roy Payne's part. His reputation rests solidly on his insistence that every job be engineered, installed and serviced under his own supervision. This gives him an immediate check on performance. Corrections and improvements can be made with minimum delay.

The policy also necessitates a complete and efficient service organization. Some idea of the scope of service work now conducted by the firm can be gained from the fact that approximately 25,000 service calls are made by the crew every year.

### Growing List of Satisfied Customers

The Paynes have held to three primary principles in making furnace installations. First, they provide for a design temperature of 30 F, which is considered entirely adequate for the area. Second, heat is placed where it is needed. The company feels that particularly in these days of modern architectural design with increased use of large glass areas, registers should be placed along perimeters where the coldest spots occur. Third, constant circulation of air is sought in order to eliminate stratification within the house.



A CARD INDEX FILE (being consulted by Gordon Payne) groups prospective customers by address, is coded to refer to a more complete file which aids in direct mail advertising campaigns



INCOMING CALLS (inquiries, requests for service, etc.) are received by eight clerks who also help with direct mailings

The controls which have been developed by Mr. Payne prove of great benefit in achieving these goals. The company has an ever-growing list of satisfied customers, many of them dating back a quarter of a century.

"The only reason for wet type heating systems is poor forced air heating installations," says Roy Payne. He goes on to explain that wet type heating does not do a proper job because it provides practically no control of air circulation.

### **Service Contract Assures Year 'Round Work**

The Payne service division deserves much of the credit for the organization's enviable record of customer satisfaction based on high quality installations. There are 30 journeymen on the payroll to handle service work.

And here is a significant fact about the crew — although the service season lasts only three months in southern California, they work regularly over the full 12 months of every year. The company's reputation attracts topnotch mechanics, and regular employment encourages them to stay with the company. Their average length of service is well over 10 years.

Of course it has been necessary to develop a comprehensive plan to spread work throughout the year. Roy and Gordon Payne do it through their home service contract. During the past five years, an average of 8000 home owners have signed up each year for these contracts. This has been accomplished, it should be noted, in a climate where heating is traditionally a minor factor in home comfort.

### **Three Calls a Year**

Under the Payne contract, three calls are made during the year at each home. These fall at the company's option between August 1 and June 30. The first calls on all customers are scheduled before the arrival of cold weather. Thus, customers are assured of instant operation the first time they have need of their heating systems. Furthermore, when the cool weather arrives, the service crew is free to handle the thousands of calls which materialize from home owners who are not on contract.

With about 100,000 furnaces having been installed by the company in years past, its own customer list includes a great many prospects for service. Additional leads are brought in by a listing of all heating installations made in the Los Angeles area. The listing service costs \$50 per month, but proves an invaluable source for future customers.

### **Service Is Specialized**

"In order to realize an adequate profit from a service operation, and adequate volume to support the organization, it's mandatory to maintain a high degree of efficiency," Gordon Payne states. "We therefore hire only very capable journeymen. In addition to mechanical skills, they must have the right appearance and personali-

ty to step into a luxurious home without discrediting the E. L. Payne Heating Co."

Servicing is specialized. For instance, there is the furnace cleaning division which did a \$20,000 volume last year. Water heaters are also handled by a separate department. Every heater installed bears a company sticker so service calls will not go elsewhere. Complete card records are also maintained on these installations.

### **Use Efficient Filing System . . .**

Operating efficiency is a requirement of the office force as well as those in the field, Gordon Payne adds. The company has a battery of eight desks where girls take incoming calls. They refer to the thousands of job cards on file to inform the service man about the equipment before he makes the call.

A visible card index system is used for a geographical file which lists all street addresses in numerical order. Each address has a code number referring to a second file where complete data is noted concerning original installation and subsequent service.

### **. . . To Pinpoint Direct Mail Advertising**

Direct mail advertising has proved most effective for the company. It pinpoints the prospect so that a sales message can be directed to his individual needs. For instance, the card files may be used to segregate the owners of floor furnaces and a mailing piece on the firm's cleaning service can then be sent to them.

Regular annual mailings are made in some instances, such as the 75,000 pieces mailed last year on service contract promotion and another 25,000 on evaporative cooling. From time to time other literature will be sent out, always to a specific group for a specific purpose.

A further advantage of direct mail as an advertising medium is that much of the work can be done by the clerks assigned to service calls. This makes it possible to utilize their time more fully. A sufficient number can be employed to handle calls during peak periods, yet they are kept busy the rest of the time as well.

The mailing pieces help to maintain continuity of customer contact, as do the calls by service men. And since the firm wishes to build on a broad foundation rather than depend on one or two specialties, it seeks to convert customers into purchasers of additional goods and services.

### **Stress Residential Cooling**

For that reason, residential cooling is being emphasized. The efforts along this line are proceeding slowly, however, since the Paynes feel that all Californians are not yet ready to pay the bill for an adequate mechanical air conditioning installation. For the present, most attention is directed toward evaporative coolers.

The firm has a quota of 10 outside salesmen who are paid on a straight commission basis. Most of them are



capable of designing heating systems for their customers. As with mechanics, the firm hires only the best men it can get. Average income of the salesmen runs over \$8000.

### Controls Aid Operation

In Roy Payne's opinion, unlike people in colder areas, Californians have no need to heat the whole house at once. Nor do they like to have heat on all the time. They want the bedrooms warm in the morning, and probably not again until after nightfall.

Four years ago, he began using a control which greatly improved the operation of forced air systems. It provides for two stage control rather than a choice between full capacity circulation or none at all. Thus, cycling on and off is reduced to a minimum, and more constant air circulation achieved.

About 1200 of these new controls have been installed by the company to date. With this control, the furnace is not shut off when temperature gets within a degree and a half of the thermostatic setting. Instead, full input is closed and the furnace operates at one-half input or whatever the second stage is set for. This arrangement provides a lag of a degree and a half, allowing partial operation for greater comfort. Coinciding with reduced furnace input, a proportionate reduction of air delivery is effected by a synchronized damper control in the scroll of the blower which re-circulates air through the blower cabinet.

### Company Still Growing

During the past 40 years, Mr. Payne built up and sold a large manufacturing operation. Shortly following the death of his father in 1944, he disposed of the Payne

Furnace Co. to Dresser Industries, Inc. He continued working with the company as general manager until 1948, when he decided to return to his first love — customer service. Mr. Payne bought the installation and service part of the original business and again entered the retail sales and service field.

The company was originally known as D. W. Payne and Son. It started in downtown Los Angeles, moving from an old stable to an address on Los Angeles St., where it remained until 1925. Then a move was made to Beverly Hills.

This decision proved a sound one, since the city's growth was in that direction. Another advantage in the location was the fact that it made almost inevitable considerable work on movie stars' homes. This was converted into an important public relations and advertising asset, since people were generally impressed with the status of a firm doing work for the big names of Hollywood.

### Big Replacement Market

Mr. Payne points out that there is a tremendous replacement market for gravity systems in southern California. In the period just before World War II, 95 per cent of the central heating installations in the area were gravity systems. Some of these were installed in regular basements and others were placed in relatively small furnace pits under the house. Of course, there is much new home building in the area, which also promises increased business.

It seems clear, then, that with a growing market potential and an installation, service and office force so effectively geared to produce customer satisfaction, the Payne company's future will be at least as distinguished as its past.

## Marketing Data for Heating Dealers

INFORMATION WHICH can help warm air heating dealers and sheet metal contractors to direct their selling efforts is given on pages 72 and 73. Data for areas other than

those listed this month has been published in earlier issues of American Artisan and this information can be found as follows:

City	Month	Page	City	Month	Page	City	Month	Page
Atlanta, Ga.	August, 1954	62	Fort Wayne, Ind.	May, 1953	81	Portland, Me.	December, 1953	67
Augusta, Ga.	January, 1954	104	Fort Worth, Tex.	August, 1953	71	Reading, Pa.	June, 1953	73
Austin, Tex.	July, 1954	56	Fresno, Calif.	July, 1954	57	Rochester, N. Y.	January, 1954	105
Baltimore, Md.	October, 1953	74	Greensboro, N. C.	May, 1953	81	Rockford, Ill.	June, 1953	73
Birmingham, Ala.	August, 1953	70	Greenville, S. C.	November, 1953	70	Sacramento, Calif.	August, 1953	70
Boston, Mass.	March, 1954	70	Harrisburg, Pa.	August, 1954	63	St. Paul, Minn.	July, 1953	79
Bridgeport, Conn.	May, 1953	81	Hartford, Conn.	January, 1954	105	San Jose, Calif.	December, 1953	67
Bristol, Conn.	November, 1953	71	High Point, N. C.	May, 1953	81	Savannah, Ga.	July, 1953	78
Cedar Rapids, Ia.	August, 1954	62	Kalamazoo, Mich.	August, 1954	63	Seattle, Wash.	June, 1953	73
Charleston, S. C.	July, 1954	56	Lawrence, Mass.	August, 1954	63	Shreveport, La.	October, 1953	75
Charlotte, N. C.	March, 1954	70	Lincoln, Neb.	November, 1953	71	Spokane, Wash.	October, 1953	75
Chicago, Ill.	July, 1954	57	Little Rock, Ark.	December, 1953	66	Springfield, Ill.	January, 1954	105
Cincinnati, Ohio	December, 1953	66	Los Angeles, Calif.	July, 1953	78	Springfield, Mo.	August, 1954	63
Cleveland, Ohio	October, 1953	74	Lowell, Mass.	July, 1954	57	Stockton, Calif.	January, 1954	105
Columbus, Ohio	March, 1954	71	Madison, Wis.	March, 1954	71	Syracuse, N. Y.	July, 1953	79
Dallas, Tex.	July, 1953	79	Milwaukee, Wis.	October, 1953	75	Tacoma, Wash.	March, 1954	71
Denver, Colo.	January, 1954	104	Minneapolis, Minn.	July, 1953	79	Toledo, Ohio	September, 1953	78
Des Moines, Ia.	August, 1953	71	New Britain, Conn.	November, 1953	71	Topeka, Kans.	July, 1954	57
Detroit, Mich.	August, 1953	71	Oklahoma City, Okla.	March, 1954	71	Trenton, N. J.	December, 1953	67
Evansville, Ind.	May, 1953	81	Peoria, Ill.	December, 1953	67	Wichita, Kans.	October, 1953	75
Fall River, Mass.	June, 1953	73	Phoenix, Ariz.	November, 1953	71	Wilmington, Del.	August, 1953	71
Flint, Mich.	November, 1953	70	Pittsburgh, Pa.	November, 1953	71	Worcester, Mass.	July, 1953	79



**1** SOMETHING NEW IN DUCTS. Two sides of this air conditioning and ventilating duct are laminated metal and plaster with the fire-resisting qualities required by code. No additional encasing in lath and plaster will be necessary. It is proving a great asset to the department store where it is to be installed, for the dust and dirt caused by on-the-job plastering would be a great annoyance. The duct is being fabricated and installed by R. B. Hayward Co., sheet metal contractors, Chicago.

# Help Yourself

**2** SPEEDING WELDING PRODUCTION. The two wheels on which the pipe rests revolve easily and facilitate a smooth and even welding job. The distance between the wheels can be lengthened or shortened to accommodate many size cylinders. The pipe rests on two pairs of wheels. This photograph was taken in the Des Moines plant of Iowa Sheet Metal Contractors, Inc.



**3** SAFETY MEASURE. Observing that a mechanic almost got his hand caught in a press brake, the shop superintendent of C. J. Carlsen Co., sheet metal contractors of Indianapolis, devised this handle, which the mechanic has to hold if he wishes to operate the brake.



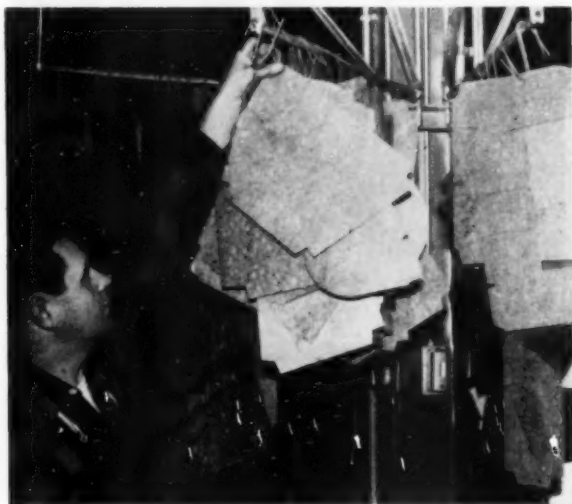
**4** HANDY SHEARS. A regular 36 in. foot treadle shears has been cut down to 12 in., and it is doing an efficient job at Eastern Sheet Metal Works, New York City. Handy for cutting cleats and narrow fittings, it is fast, requires little effort to operate, and takes up less room. Mechanics like this tool.

# to Extra Shop Time

... by using the sheet metal tools  
and skilled manpower you already have to construct  
improvised tools, tool racks, and other  
devices which speed production, improve quality

**By Lawrence E. Gichner**  
**Sheet Metal Contractor**

ONE OF THE special advantages enjoyed by any sheet metal shop is its ability to construct labor and time saving devices for itself, using its own tools and manpower. It can adapt its own tools to make them better suited to specific kinds of jobs. It can construct tool racks for more efficient storing. It can do scores of things to improve both shop and office procedures, which in turn improves the quality of the service and products it offers. In traveling about the country I have seen



**5** **PATTERN FILING SYSTEM.** Swinging arms on the movable rack accommodate a great number of patterns and quickly make available any desired one. Every pattern is visible and within reach — a decided improvement over having patterns dangling from nails. Austin Sheet Metal Works, Inc., Chicago, uses this method.



**6** **MAKING TOOLS ACCESSIBLE.** Instead of soldering irons, saws, hammers, punches and hand tools being jumbled together in a box or drawer, they are neatly hung on the walls at Super Steel Products Co., sheet metal fabricators of Milwaukee. If one is missing or in use, its absence is quickly indicated.

numerous examples of ingenious sheet metal men helping themselves in this way.

Take for example the adaptations shown in Figs. 1 through 4. The duct described means less time and less confusion at the job site. The welding aid speeds fabrication in the shop; the handle devised increases shop safety; and the cut-down shears are extremely convenient.

Shop efficiency is also increased by the filing set-ups shown in Figs. 5 through 9. Bins and racks not only make tools handier but protect them against damage.

Many companies also have devised methods for improving office efficiency. These include methods for keeping a record of time put in by employees and for keeping careful track of jobs as they are processed through the organization. (See Figs. 10 and 11.) Some systems (such as the catalog reference system, Fig. 12) are beneficial to both office and shop.

It's clear that ingenuity and planning in the shop help produce more work more efficiently and mean more satisfied customers in the long run.

**7 CLEAT BIN.** The problem of handling unwieldy cleats has been aptly solved by the Austin Sheet Metal Works, Inc., of Chicago. Large bins have been built in which to store these duct fasteners. In slack moments, the cleats are cut from scrap, run through the forming machine and fed into the bins from the top. As needed, they are drawn from the opening at the bin bottom. To avoid the cleats' binding inside the bin, the back side of the bin can be sloped toward the front.



**8 PUNCH RACK.** No longer are punches and dies lost or misplaced in the sheet metal division of Dierks Heating Co., Long Island City, New York, since this handy rack has been built and attached right to the side of the machine in which punches and dies are used. Made of heavy block iron with a large drawer at the bottom, the rack provides ample room to store all removable and necessary parts. When it is time to change one punch for another, hunting is unnecessary, for the correct size punch can be found at a glance. Shelves holding the dies are sufficiently deep, so that thumping of the machines does not dislodge them.



**9 CLAMP RACK.** A mechanic in the plant of Super Steel Products Co., sheet metal fabricators of Milwaukee, knows where to go for a clamp, and at a glance he selects the right size. For this rack, constructed of a sturdy bar, holds all the fasteners not in use. A system which allows scattering of clamps all over a shop compels mechanics to waste time playing "hide and seek."



**10** **JOB CONTROL SYSTEM.** Seen at a glance are all outstanding work orders, with detailed instructions of what is to be done in each case. Orders are removed as soon as they are completed so that attention automatically is concentrated on those remaining. This gives management the status of current work and jobs ahead. This visible system was made by and is in use at the plant of Breeze Bros., sheet metal contractors of Cincinnati.



WEDNESDAY		
DAILY JOB TICKET		
DATE	MECHANIC'S NAME	JOB NO.
	C. ECK	
TIME STARTED		PIECE NO.
TIME STOPPED		
TIME ELAPSED		

**11** **NOVEL TIME TICKET.** Making up the payroll, with its myriad deductions and computations, is a major operation in every organization today. This is further complicated by the problem of getting employees to hand in their correct hours and hand them in on time. Eastern Sheet Metal Works, New York, has devised two simple techniques for saving time and eliminating error. Instead of having one overall time card, as is customary in most shops, the company has a  $4\frac{3}{4} \times 4$  in. card for each day of the week with not only the name of the day printed in large letters on the card, but a different color card for each day and white for overtime. The shop superintendent has at his desk a rubber stamp for each man's name. He uses these on each day's card.



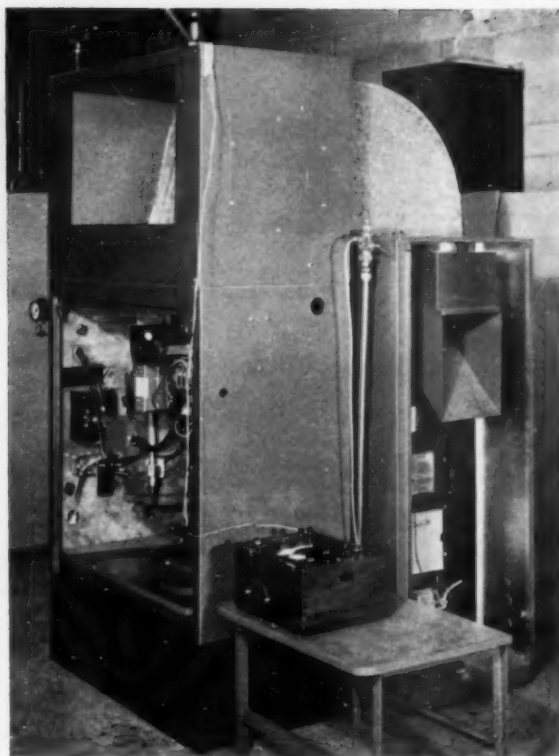
**12** **CATALOG FILE.** Time and energy lost in searching for reference catalogs have been reduced to a minimum in the estimating department of Louis Hoffmann Co., sheet metal contractors of Milwaukee, by this handy filing system. All catalogs pertaining to a subject are filed in one drawer. Pulling out the drawer, the estimator has at hand all data on the subject he is seeking, whether it be skylights, louvers, grilles, blowers, fittings, metal stampings, or any similar topic.

# You Can **GUARANTEE** Year 'Round Comfort

Adhering to some well tested installation practices in combining heating and cooling will enable you to provide the maximum in efficiency and safety

**By P. W. Wyckoff**

Airtemp Div., Chrysler Corp.



WILL THE WARM AIR coming off the furnace in the winter time cause excessive pressures in the cooling system in applications where the cooling coil is located in series with the furnace? No — according to results obtained with this laboratory test set-up

HOW CAN YOU team up heating and cooling to provide the most efficient, safe operation possible? Last month's article discussed this question in relation to the different types of systems generally used (furnace and air conditioner connected for parallel or series type operation). In this second (and final) article, we will discuss further the series type system and will go over in detail a number of codes covering year 'round air conditioning, evaluating them on the basis of the main aims already mentioned — safety and efficiency.

## **Adding the Cooling Coil**

If a cooling coil is added in the field to a forced warm air furnace, the furnace should be capable of being operated between the approved air temperature rise limits (usually 70 to 100 F). If the air flow of the furnace is analyzed in advance, as described last month, it is not difficult to assure that this will be the case. If an attempt is made to use a very small coil in series with a very large furnace, the excessive restriction may cause high temperatures at the discharge of the furnace. This is the

reason that a good analysis should be made of the furnace air flow — either by the manufacturer or by the installing dealer.

Usually furnaces carry standard approval for operation with a furnace plenum discharge static pressure of 0.12 in. to 0.25 in. water gage, depending on the furnace size. If a cooling coil is added in series with the furnace, it is possible that the approved value may be exceeded. Usually an increase in static pressure has a comparatively small effect on furnace operation, although it may result in a tendency toward greater air leakage through the furnace jacket at various points.

### Approve Higher Static Pressures

The American Gas Association laboratories have now set up a special procedure permitting the approval of furnaces at a higher than normal static pressure. This is an addendum to the American Standard approval requirements for central heating gas appliances and was effective March 12, 1952. For example, some lines of furnaces are approved under these new requirements for 0.5 in. of water external static pressure to accommodate the application of cooling equipment later. Although many engineers feel that slight increases in static pressure above 0.2 in. have a relatively minor effect on furnace operation, some local authorities may wish to have furnaces approved for the static pressure actually existing in the year 'round system during operation. The Underwriters' Laboratories, which is the corresponding agency approving oil furnaces, also permits the manufacturer to designate a specific static pressure for furnace approval.

There are some year 'round air conditioner designs in which the furnace and air conditioner are combined by the manufacturer in one package which cannot be separated for agency approval. For this reason, the combination usually bears an Underwriters' Laboratories and/or American Gas Association label. However, in designs where the furnace and air conditioner are completely separate units joined in the field by ducts, these agencies do not normally accept such combinations for approval of the entire system because the air conditioner and furnace can be separately approved. An exception may occur when a furnace and air conditioner are physically bolted together without ducts as special "close clearance" approvals may be affected. As long as the air conditioner and furnace are properly approved, either as separate units or as a complete package, the customer is assured of safe construction.

### Cooling Coil Location Vs. Internal Pressure

One question which has been raised regarding the use of a cooling coil located in series with a warm air furnace is whether the warm air coming off the furnace in the winter time can cause excessive pressures in the cooling system. There is no theoretical or practical basis for concern in this matter. The pressures in a system con-

taining a condensing gas are determined by the coldest point in the connected circuit and not the hottest point. Thus, 180 F air from the furnace would tend only to superheat the refrigerant vapors in the evaporator coils.

For example, an analogy might be made with a residential steam heating system. Building a fire under one of the radiators would have no effect on the system pressure since this is determined at the boiler. Similarly, a high temperature at the evaporator coil of an air conditioner simply drives the refrigerant into the colder parts of the system (usually the condenser or compressor) and the pressure existing in the system is the vapor pressure corresponding to the temperature surrounding these coldest points.

The accompanying figure shows a laboratory arrangement set up to illustrate this. The warm air from the furnace was led directly across the cooling coil of the air conditioner. To be sure of using the worst conceivable condition, the furnace temperature limit control was set at its maximum setting — permitting an outlet temperature of 250 F — the thermostat being shorted out. With the furnace blower operating but with the furnace fuel turned off, the air conditioner was operated normally. The cooling water for the air conditioning condenser was then shut off — causing the head pressure to rise until the high pressure cutout turned it off. The furnace was then immediately fired — heating the air to a 250 F temperature. Even under this unlikely condition, the equilibrium pressures in the system were 178 psi, corresponding to 93 F for this refrigerant ("Freon-22"), which was about the temperature existing in the room at the time of the test (and was therefore the temperature of the compressor and condenser where the refrigerant migrated from the evaporator coil).

### Excessive Pressures Not Conceivable

This pressure is, of course, lower even than that existing in the high side of the unit in normal operation and far below the approved working pressure of the various components in the air conditioning system. Many other combinations were tried and it was found impossible to raise the pressure in the cooling system by any manipulation. The only way this would be possible would be for a shutoff valve to be deliberately located on both sides of the cooling coil and both valves shut off together — trapping refrigerant in the evaporator coil before the furnace was turned on. This is not possible with any packaged air conditioner the author knows of.

If the furnace and air conditioner were operated simultaneously, it would be equivalent to placing a very high load on the air conditioner and its overload devices would immediately turn it off.

We can conclude that it is not possible under any conceivable field operating conditions to obtain excessive pressures in the refrigeration system whose coil is installed in series with the furnace, regardless of the air temperature coming off the furnace. It is advisable that

the control circuit prevent the furnace and air conditioner from being operated simultaneously or that the air conditioner compressor have manually reset (not automatically recycling) overloads. The author's company does not recommend that the air conditioner be "pumped down" during the winter time (i.e., that all the refrigerant be pumped into the receiver) since this makes it impossible to have cooling immediately at the command of the thermostat and it is no improvement as far as safety is concerned.

### Codes Cover Warm Air Plus Cooling

There are a number of local and national codes and manuals touching on the subject of air conditioning combined with forced warm air furnaces:

1) Manual 11, 2nd ed., of the National Warm Air Heating and Air Conditioning Association is a well known and widely used manual concerned primarily with computation of heat loss in homes and the sizing of air conditioners and the associated ductwork for various applications. Little is said at present about the effect of various distribution systems on the equipment itself.

2) FHA Bulletin ME-12 contains a set of requirements issued by the Federal Housing Administration, has a number of interesting provisions connected with the subject of this paper. For example, clearances of the equipment as installed are to be in accordance with those listed by American Gas Association laboratories and Underwriters' Laboratories for their equipment. The ductwork design is to be in accordance with the NWAHACA manuals and the resistance to air flow through the distribution in the return system is to be less than the available external static pressure indicated in the manufacturers' rating. Underwriters' Laboratories approved high pressure cutoffs, suitable safety reliefs and motor overload protection are required for the air conditioning equipment.

### Issue Thorough Ordinance

3) The city of Atlanta recently issued an ordinance which appears to be quite thorough. Among other provisions are the following requirements (abbreviated from the original):

With the furnace operating against the total resistance of the system, it must be capable of supplying enough air so that the air outlet temperature in the plenum does not exceed 200 F (i.e., roughly a 120 to 130 F air temperature rise).

The latest engineering publications of the National Warm Air Heating and Air Conditioning Association and the American Society of Heating and Ventilating Engineers are acceptable.

No system (e.g., ductwork plus cooling coil) can be connected to a forced air furnace if the total friction loss exceeds 0.2 in. water gage. Furnaces approved for external static pressure in excess of this may have systems

connected thereto with friction losses in accordance with such approval. Otherwise, bypass dampers must be installed around the coil.

4) The Philadelphia Gas Works issued a letter on June 8, 1953, describing the company's service policy on heating and air conditioning systems. In general, the firm does not favor a cooling coil on the inlet side of the heating unit and would prefer separate filters for heating and cooling (if service is to be rendered).

### Some Codes Could Be Augmented

5) The 1953 edition of the *Southern Standard Building Code* has a provision as follows:

"A furnace when used in conjunction with a refrigeration system shall be installed on the discharge side of the blower. The furnace shall be installed in parallel with or ahead of the refrigerating coil. If the refrigerating coil is installed in the air discharge duct from the furnace, this coil shall be installed in or provided with a bypass duct unless the furnace is listed for operating with at least 0.5 in. water gage static pressure at the outlet air connection."

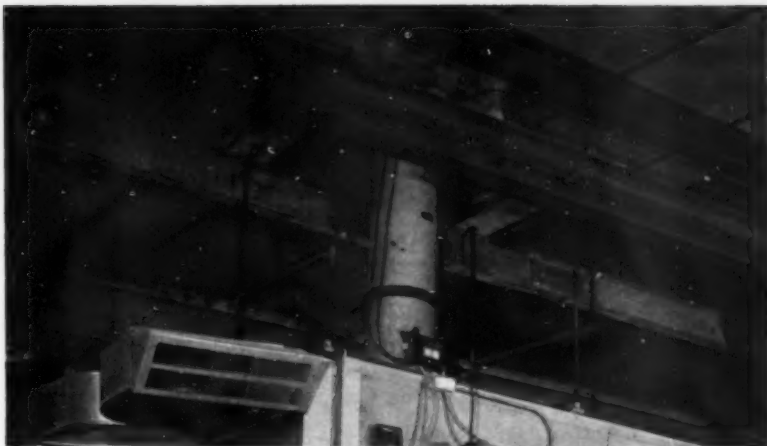
While the author sympathizes with the objective of this restriction, it is his feeling that the requirements could be made more complete. Simply to require approval at 0.5 in. water gage static pressure is not sufficient. For example, if too small a coil were placed at the discharge of the furnace and the static pressure went up to 0.7 in. water gage, the installer could decrease the blower speed until the pressure was within 0.5 in., but he might at the same time have reduced the air quantity so much that the high discharge temperatures would occur at the discharge of the furnace (thus violating some agency approvals). Also, the bypass and dampers can themselves introduce other difficulties. The thought behind the requirement probably is that a furnace approved at a higher than normal static pressure is likely to have a better and tighter construction.

6) *ARI Tentative Year-Round Application Engineering Standards*, No. 6-10, of the Air-Conditioning and Refrigeration Institute cover application of air conditioners and load calculations.

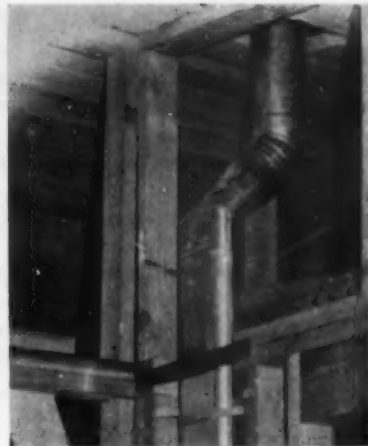
7) *ASA B9, American Standard Safety Code for Mechanical Refrigeration*, relates to design details of mechanical refrigeration systems — size of pressure vessels, types of safety relief, refrigerant classifications, etc. Sponsored by the American Society of Refrigerating Engineers, this code is an excellent example of a model national safety code which has been widely adopted by local authorities and has helped to reduce the number of differing and confusing regulations which might otherwise have resulted.

Other miscellaneous local restrictions are in effect which prohibit connecting a furnace and air conditioner in series because of fear of warm air on the cooling coil during winter operation. There is no basis for this type of restriction, as has been pointed out.





VENTING SHOULD be straight upward whenever possible. Hot gases flow upward, so that horizontal runs introduce resistance. A draft diverter should always be installed (note the one behind the I beam)



WHEN VENT IS installed inside interior walls or partitions, an oval vent pipe can be used which can be easily concealed. The usual practice in furred out locations is to install the vent with 1 in. clearance from combustible material

## Venting Gas Fired Heating Equipment

By Jerry Polland  
Manufacturers' Representative, Chicago

### Some Important Do's and Dont's . . .

PROPER GAS VENTING is the most important part of the job of installing gas fired heating equipment. The responsibility for venting appliances in a manner that assures safety to persons and property rests entirely with the men doing the job.

All gas equipment, with the exception of automatic gas ranges and domestic clothes dryers, should be connected to an effective flue or vent if it comes under any of the following classifications:

- Any equipment installed for domestic purposes having an input rating of 50,000 Btu per hr or more.
- Automatically controlled equipment which uses less than 5000 Btu per hr, unless equipped with an automatic pilot or a flame responsive fuel shutoff device.
- Room heaters in sleeping quarters for use of transients or in institutions such as homes for the aged, sanatoriums, orphanages, etc.

• Equipment which has draft hoods supplied by the equipment manufacturer, except automatic water heaters having input ratings not in excess of 5000 Btu per hr and room heaters listed as unvented.

• All space heating — warm air furnaces, unit heaters and recessed heaters.

#### Why is Venting Needed?

Theoretically perfect combustion is seldom achieved in actual practice. Combustion occurring in modern gas equipment bearing the AGA seal of approval will not produce a toxic carbon monoxide vapor when the equipment is installed and adjusted in accordance with the manufacturer's specifications.

The toxic properties of carbon monoxide vapor are well known; however, as the process of combustion continues, other toxic products are produced. Two of these, water vapor and carbon dioxide, are elements found in

This paper is taken from a talk given by Mr. Polland at the recent annual convention of the Sheet Metal Contractors Association of Illinois.

the normal balanced atmosphere. When improper venting permits the latter products to escape into the confined space of a building, the normal balance is upset and the resulting gas is harmful to health and damaging to property.

The purpose of venting gas equipment is to completely and safely remove all the products of combustion and to vent gases to the outside air without condensation in the vent or spillage at the draft hood. An effective vent installed in accordance with a few basic rules will discharge all waste products harmlessly to the outside atmosphere. The installation of such a vent must be made with an appreciation of how it operates and what it is to do.

### **Gravity Vent Should Not Be "Primed"**

Gravity type vents are dependent upon the pressure differential between the weights of two columns of gases to float the gases up the vent and into the outside atmosphere. Flue gases within the vent must be warmer and therefore lighter than the cooler surrounding air. The heavier surrounding air will then exert a pressure by pushing in through the combustion chamber and draft diverter and floating the gases out the top of the vent. Thus, the only source of energy is the heat contained in flue gases. There should be no lifting action needed to prime the vent and pump the flue gases up when a relatively high temperature within the vent interior is maintained. National surveys have established the fact

that disregard of this rule is the greatest single cause of vent failure.

Though interior vent surface temperatures should be relatively high (above dew point), the exterior walls of the vent must remain at low temperature during maximum, prolonged operation. An unapproved vent made of materials having low insulating qualities and containing hot flue gases is a fire hazard.

Many vent failures result from excessive thermal loss which occurs when the vent and vent connectors are uninsulated and are so cold that the interior gases are too heavy to be floated out.

### **Preventing Flue Gas Spillage, Condensation**

Let us assume that you connect gas equipment of fixed input to a vent. As the gases flow through the vent, they lose heat through its walls and become cooler. If the vent gases become too cool, the draft will be weak and flue gas spillage may result, especially if there happens to be a slight negative pressure in the building or a positive pressure on the roof. If the vent is made long enough and high enough, the gases in the vent will be cooled to a temperature below their dew point and condensation will result. When this occurs, the condensate runs back down the pipe. This corrosive condensate may cause serious damage to the vent and the building in which it is installed. In this case there is not enough energy to vent the equipment.

The vent did not function at its required capacity

### **Basic Rules for Good Gas Equipment Installations**

- Keep the flue gases hot.
- Follow the vent manufacturer's installation instructions.
- Select the proper vent size.
- Provide constant fresh air replacement.
- Install a draft diverter.

### **Some Specific Do's and Dont's**

- DO increase size of the vent when joining two vents.
- DO join all fittings through a smooth flowing round cornered tee or lateral joint.
- DO run separate vertical vents if items of equipment being vented are a long distance apart.
- DO always pitch lateral vents upward, 1 in. per ft.
- DO always join two vent connectors into a common vertical vent at different levels so that no part of vent is in the same horizontal plane.
- DO always check operation of vents when operating at full capacity with all ventilating fans on the premises turned on. This may create a pressure differential which would upset vent operation.
- DON'T run two vents into a common vent of same size flue pipe unless inputs to both pieces of equipment are 20,000 Btu per hr or less.
- DON'T install vents with square corners or sharp turns when joining two vents into a common vent.
- DON'T run long lateral runs to a common vent. Hot flue gases rise and will not run laterally.
- DON'T install vents horizontally or run them downhill.
- DON'T join vent connectors by means of an opposing tee. The flow of gases from one vent will oppose the entry of the flue products from the other and result in venting failure.

because there was too little input into the equipment in relation to the size and length of the vent. The Btu input just before condensation occurs may be called the "minimum input" for the vent. If the input were less than this minimum, condensation, spillage or both could occur.

This shows that to operate properly, a gas vent is limited to a maximum input and a minimum input. The vent will carry off all the flue gases only if the input is between this maximum and minimum. This range can be called the "vent capacity."

Now that we know the importance of keeping the flue gas temperature high, it becomes clear that an insulated vent and vent connector should be used in unheated spaces. The vents should be installed as vertically as possible inside heated spaces and advantage should be taken of the surrounding warm air. The installer should use a vent of low thermal capacity that heats quickly.

### **Must Observe Minimum Clearances**

One of the most common code violations is the failure of the installer to observe minimum space clearance to combustibles or combustible construction. Where vent pipes pass through walls or ceilings, proper clearance must be maintained by using a ventilated thimble. In addition to installing a good job, the dealer may save the home owner 25 cents per hundred dollar valuation penalty rate required by most fire insurance companies when code requirements are violated. This means a saving of \$25 per year on a \$10,000 dollar policy.

The requirements of the American Gas Association, the National Board of Fire Underwriters, the vent manufacturer and all local codes pertaining to the location and clearance for a given appliance must be observed. When in doubt, the dealer should contact the local gas utility company, as it is accustomed to building problems of this type and can provide advice based on similar installations.

In general, equipment should be located for best heat distribution. It should be as close as is practicable to a point from which a vertical vent can be run through the roof.

Whenever possible, space should be provided for a vertical rise of the vent connector as high as possible immediately after leaving the draft hood. Hot gases flow upward — horizontal runs introduce resistance. The best location, as far as venting is concerned, is one which permits the equipment to be vented straight upward from the draft hood.

### **Where Should Vertical Vents Be Located?**

There are five general locations for vertical vents. The selection of any given location is often dictated by conditions at the job.

The first of these locations is inside a furred out space. The usual practice is to install and support the vent with 1 in. clearance from combustible construction, but local

## **Building Better Employees**

AN EMPLOYEE TRAINING program is being conducted in which heating service men receive technical instruction at an accredited vocational school at company expense. Student-service men completing the course may qualify for a newly created classification which automatically makes the employee eligible for promotion when an opportunity occurs. There are now 167 service men in training, with about 60 jobs now open in the new classification.

The length of the course depends upon the results of special entrance examinations. Each man is rated upon the grade earned and a curriculum is arranged to meet his requirements. The course is sponsored by the Milwaukee Gas Light Co., and is being conducted at the Milwaukee School of Engineering with the cooperation of union officials.

codes should always be observed. After installation, the vent is concealed within a furred out pilaster or corner cover, no combustible portion of which is closer than 1 in. from the vent.

The second location is inside interior walls or partitions. If interior walls and partitions are built with 2 × 4 studs, round type vents cannot be concealed inside them, as the space is too small. However, there is an oval vent pipe that is designed for this purpose and can be installed without difficulty in existing or new walls and partitions. The procedure for installing oval vents is simple, but will vary somewhat depending upon local building requirements.

The third location would be within exterior walls. This is done in exactly the same manner as for interior walls and partitions. However, in cold weather there is a greater heat loss with this arrangement.

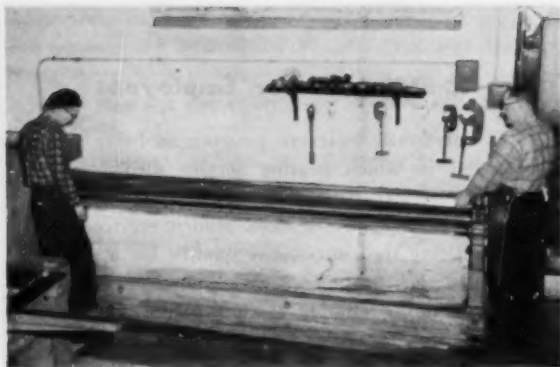
The fourth method, although not very efficient, is sometimes necessary. This is the outside vent. It is not efficient because the vent gases contained in an exposed uninsulated vent lose their heat content rapidly and often do not float upward rapidly enough to vent the equipment properly.

An outside vent pipe should never be terminated next to the wall; it should be run up above the eaves of the roof to prevent condensation damage.

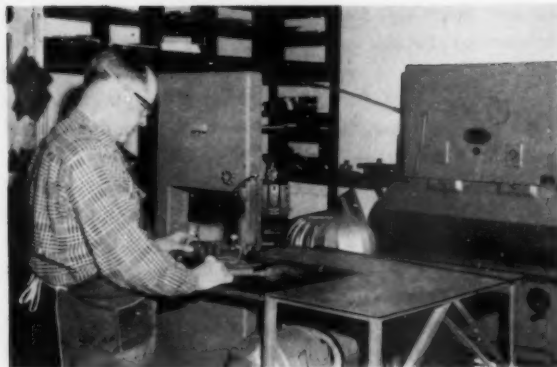
### **Masonry Chimney Should Be Lined**

The fifth and final location is inside masonry chimneys. An unlined masonry chimney should never be used for venting gas equipment. The chimney should be lined

*(Please turn to page 216)*



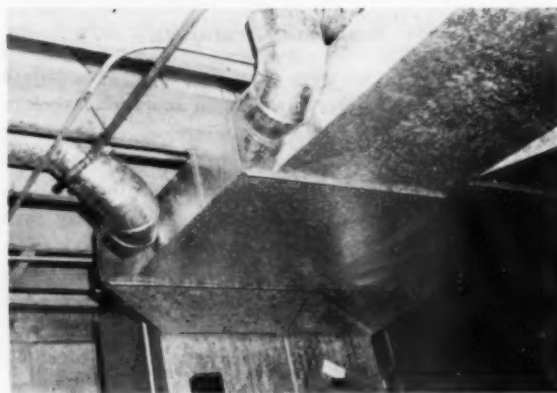
**1 COSTS ARE DOWN**, quality up, because the company uses many versatile machines such as this rolling machine (on which a 10 ft section of round duct is being formed) . . .



**2 A BAND SAW** (which can cut up to 40 pieces of 24 gage steel at one time) . . .



**5 FOR CUSTOM BUILT HOMES** such as this seven room structure with a partial basement, the company uses its standardized fittings and specially designed baseboard registers in carefully engineered air distribution systems



**6 WIDE, FLAT DUCTS** are used to give head-room in the basement. All take-offs go to round duct supplies

## How to Beat "Price Squeeze"

How to Beat the "price squeeze"—that is, provide top quality work while meeting stiff price competition—is a problem for every warm air heating and residential air conditioning dealer. Martin Schaar, of Milwaukee, has his own formula for solving this problem. He believes in the development of sheet metal duct fittings that can be used to meet several different specifications,

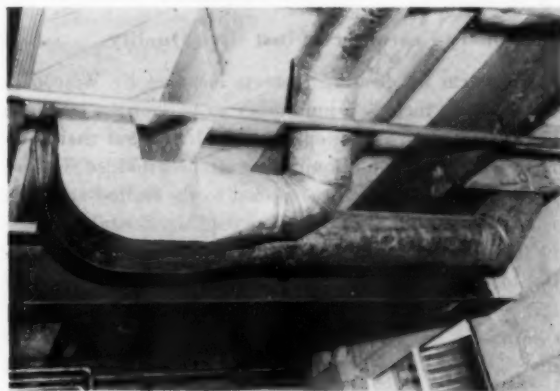




**3** A POWER BRAKE (which, besides fabricating fittings, forms gutters, as shown, and performs other functions) . . .



**4** AND A SPECIALLY designed gutter former



**7** EACH SUPPLY BRANCH contains a damper for volume control



**8** THE BASEBOARD REGISTERS used were designed and fabricated by Mr. Schaar's company

**. . . while doing top quality work is a problem solved by one dealer who uses a variety of machines to produce standardized components that improve installations and cut costs**

and in standardizing his engineering around the versatility these fittings provide.

Fabricating standardized fittings is only one of the functions of his sheet metal shop. Fig. 1 shows two journeymen sheet metal workers fabricating a 10 ft section of 5 in. round duct. Mr. Schaar says that the fabrication of fittings and ductwork helps him to smooth out the

flow of work through the sheet metal shop, which has 36 employees, none of whom has any lost time during the year.

The shop superintendent, Ellery Weber, is also president of the local sheet metal workers' union and is responsible for many of the shop procedures.

Fig. 2 shows a band saw being used to cut fitting

parts—up to 40 pieces of 24 gage steel can be cut at one time. Also in Fig. 2 can be seen a 4 ft power brake and a rack of dies that aid in the production line techniques used for fitting fabrication. These tools are used for other types of work as well. Fig. 3 shows the power brake being used to form a special gutter for an unusual roof drainage problem—another specialty of the sheet metal shop. The first step in forming a gutter in a special gutter former is shown in Fig. 4.

### Shop's Not Cluttered

The shop, engineering office and garage occupy a building 65 x 45 ft in size—a total of 2925 sq ft. Of this total, the shop occupies only 2085 sq ft, and in this space are six work benches, all 10 ft long; a 10 ft power squaring shear; a gutter forming machine; three power brakes (4, 8, 10 ft); one rotary punch; a drill press; 10 elbow machines; riveting machines; an electric arc welder; a pipe cutting and threading machine; an angle iron cutter; a lock former; a bar folder; a gang punch; three hand rollers; edging machines; and eight hand turning machines.

This list of tools may give the impression that the shop is cluttered, but this is not the case. Each piece of equipment is so placed that it provides adequate working room and will not interfere with some other operation that may be taking place at the same time.

### Fabricate in Advance . . .

The need for certain fittings and quantities of ductwork can be estimated far enough in advance so that a constant supply of fittings can be depended upon when needed. This is important when over 800 warm air heating systems are installed a year, as was the record set in 1953. Summer cooling equipment sales are accounting for about 40 per cent of the number of systems installed this year.

### For Typical Job

The type of home that the Wisconsin Furnace Co. specializes in can be seen in Fig. 5. This is a custom built, seven room house, with a partial basement, some crawl space and a partial slab floor. The supply take-off and some return air ducts can be seen in Fig. 6. The supply duct was made wide and shallow to provide the

headroom desired—an important consideration in this basement. Note that the branch take-offs are identical (the result of the standardization of fittings, which simplifies installation) and that branch ducts are round and fitted into the space above the joists and pipe lines.

Every branch duct has its own damper for balancing the air flow. Fig. 7 shows the termination of a rectangular branch duct into two standardized rectangular to round fittings, with the dampers located in each register line.

The end of the supply duct is a baseboard register (previously mentioned) that has been designed by Mr. Schaar and fabricated in his shop. This baseboard register is designed to harmonize with the baseboard and to flare the air pattern so that air wipes the exposed portions of the outside wall, as shown in Fig. 8. Note that there is a window (15 x 42 in.) on each side of the bay, not clearly noticeable at first glance.

### To Satisfy Customers, Must Give Quality

All warm air heating systems installed by Wisconsin Furnace Co. include a humidifier as part of the standard equipment, as it is the opinion of Mr. Schaar that complete winter air conditioning cannot be provided without adequate moisture being supplied to the heated air. This is also one of the added features that Mr. Schaar includes in his sales program because he does not believe in trying to underbid his competition, but rather in providing the best heating system possible for the house under consideration. He admits this outlook sometimes makes it more difficult to sell the prospect, but it is his opinion that it is more important to have all satisfied customers saying good things about their heating systems than to have one dissatisfied customer condemning all heating systems.

He says, "By standardization and simplification of the air distribution fittings and parts, I can narrow the gap between low bids and what I consider a quality installation. Any warm air dealer can do what I'm doing if he will make a time study of each operation—both in the shop and on the job. The reputation my firm enjoys is a big help when submitting a price, and the free advertising we gain by doing quality work cannot be purchased through any other medium. I believe in getting a fair price for our work and sharing it with those who make our operation possible."

## Act to Give New Homes 100 Amp Capacity

THE NATIONAL ASSOCIATION of Home Builders has unanimously adopted a voluntary standard on electric service entrance capacity. This standard, if followed widely by the country's builders, will

give the householder 100 amp capacity in place of the generally found 30 to 60 amp capacity. The new suggested capacity agrees with the recommendation of an electrical industry committee

which is drafting new national standards of wiring adequacy for residences. Thus, customers buying from builders who follow the NAHB voluntary standard can be sure of enough amper-

age available to their home distribution systems to support the heavy-duty circuits they need for air conditioners, room coolers, furnaces and other electrically operated equipment.

# Residential Air Conditioning — How's It Going?

**"Residential air conditioning is a good market and we expect to keep plugging for it." — Standard Heating Co., South Bend, Ind.**

**"We've had more inquiries for residential air conditioning systems during 1954 than in any previous year." — J. A. Fritch & Sons, Peoria, Ill.**

**"We expect even greater customer interest in residential air conditioning next year." — Armstrong Heating Co., Richmond, Ind.**

**"At a recent model home showing about 75 per cent of the visitors asked the salesman who met them at the door if the house was air conditioned." — Newsome Air Conditioning Co., Newport News, Va.**

**"Our 1954 residential air conditioning tonnage to date is 340 tons." — Shaker Tinning and Heating Co., Cleveland.**

**IT'S GOING FINE**, as predicted by the American Artisan last January, when we estimated that 75,000 central residential air conditioning systems would be installed during 1954 as compared with the 50,000 central installations made in 1953. A quick check last month of representative American Artisan subscribers indicates that they are installing 55 per cent more central systems this year than in 1953. Applying this increase to the 50,000 central jobs installed last year, we hit just about on the nose the 75,000 estimated jobs this year.

The same dealers reported — in most cases — that the increase in sale of window air conditioners ranged from 10 to 200 per cent when compared to last year. In only a few cases did a dealer tell us that the number of units sold in 1954 did not exceed the number sold in 1953.

Manufacturers of warm air heating and residential air conditioning equipment confirm that the 1954 market for central residential air conditioning equipment is following very closely the pattern we anticipated at the beginning of the year.

## **Expect '55 to Double '54**

One manufacturer wires us that "following analysis of industry trends and reports, we estimate about 75,000 central residential installations during 1954 as against about 50,000 in 1953. We believe 1955 will approximately double the 1954 installations. Our sales and production plans are being framed in anticipation of substantial increase, as indicated by the growth picture."

Another manufacturer says that "the best first half-year on record reveals that sales billed in 1954 were up 71 per cent over the first half of 1953, our previous record year. We have found that the growing acceptance of central home cooling and commercial packaged air conditioning can easily over-ride seasonal factors. When this acceptance is coupled with a high rate of building activity, as it has been this year, we find that the combination is unbeatable. These facts lead us to predict that sales for the entire year 1954 will be substantially higher than those of 1953."

## **Market to Be "More Competitive, but Expanding"**

Another writes: "Looking ahead, we anticipate that residential air conditioning equipment will be available

in larger quantities in 1955. Most firms will increase their production as well as introduce new or improved products. Industry reports also indicate that a number of new firms, seeking diversification, will soon enter the air conditioning field. We expect, therefore, a more competitive market but also an expanded market in '55.

"The demand for air conditioning, which continues to mount yearly, will receive additional stimulus from increased advertising and more intensive sales promotion on the part of all manufacturers. As proved this season, maximum success will accrue to the individual salesman, distributor or retail dealer who prepares and charts his 12 month selling program as far in advance as possible."

Reports from other companies follow similar patterns, all tending to bear out the wide interest in — and acceptance of — residential air conditioning by the public.

### Dealers Report Public Interest High

The warm air heating and residential air conditioning dealers queried were situated in the northern part of the country rather than in the South and Southwest — where

it is well accepted that residential cooling is to date making more than average strides in public acceptance. Answers came from both large and small communities, and practically all of them indicated increases in the number of central installations. In only one case did a dealer report that he failed to make as many central installations in 1954 as in 1953.

The major immediate cause of this increase is the interest shown by the public in residential air conditioning. This interest is apparent from the answers received to the question, "Is the public interest in residential air conditioning in your community very high (or low)?" The response indicated that, in 90 per cent of the communities, the public exhibited increased interest in summer cooling equipment. An analysis of the communities reported as evincing little interest in residential air conditioning shows that they either have a small population or are experiencing some temporary economic difficulty.

Dealers also indicate that plans now being formulated by them call for an even greater volume of year 'round air conditioning equipment being sold and installed during 1955.

## Milwaukee Dealers Go All-Out

... for outing that provides a chance to  
meet other dealers as well as suppliers



TYPICAL MILWAUKEE WELCOME is given to Ray Shuttleworth (left) by the reception committee consisting of Louis Stefanik, Fred Heise and Bob Schmieder

MILWAUKEE SHEET METAL and warm air heating dealers turned out in full strength for their annual stag picnic held July 14 at the Bavarian Club. Out of town dealers and sales representatives of manufacturers and jobbers were invited. The total attendance for the day and evening was 163.

Outstanding among the day's activities was a soft ball game between a team representing the dealers and contractors, known as the "Tinnners," and a team termed "Peddlers," consisting of representatives of the suppliers and associated members. The outcome of this memorable game will probably never be known due to the two scorekeepers, one of whom reported a 13 to 12 score in favor of the Tinnners while the other reported a 13 to 12 score in favor of the Peddlers. A reported playoff is being scheduled for the 1955 picnic.

### Cards, Checkers and Chats

Another feature of the stag picnic was the fascinating game of sheephead — a game of cards seldom played outside the Milwaukee sphere of influence. Arnold Holming, an expert, was reported as being reluctant to leave the card table for the dinner table after playing for six consecutive hours.

Other mid-day activities consisted of horse shoe pitching, checkers and chatting with old friends.

The day's fun concluded with a six course dinner and community singing (Ray Shuttleworth accompanying at the piano).





DISCUSSING WELDING techniques are (l. to r.) Ted Brenner, Bob Heinritz and Art Mantei



BOARD OF DIRECTORS of the association includes (l. to r.) V. J. Kerscher, F. A. Kramer, Henry Potthast, J. E. Harbridge, Bernard Zahn, Bob Schmieder, Bob Heinritz and Cy Perkins

## Wisconsin Contractors Hear About

# A Tough Welding Job

. . . and special devices for accident prevention

THE MID-SUMMER MEETING of the board of directors for the Sheet Metal Contractors Association of Wisconsin was held in Appleton, July 17, at the Elks Club. After the regular business meeting was completed, an open forum was held on the subject of industrial sheet metal contracting. Ted Brenner, Fond du Lac contractor, outlined the problems involved in the fabrication of special tanks for the U.S. Navy, and Art Mantei, Milwaukee contractor, discussed the importance of safety guards for sheet metal working machines.

Mr. Brenner described the welding requirements which must be met to pass the Navy's rigid inspection system. He cited as an example a recent job completed for the Navy, which required knowledge of a special application of heli-arc welding in which a welding rod was used in a torch that emitted helium, argon, air and water at the same time. This type of welding was used both on the external seams and internal bracing structures of tanks. The tanks were fabricated from 4 × 7 bronze sheets, the larger ones weighing as much as 9000 lb when completed.

### Fumes a Problem

The internal welding process became quite a problem due to the disagreeable fumes created in the process of

joining silicon bronze fittings to aluminum bronze walls. Standard respirators failed to protect the welders because the fume concentration was stronger than that normally encountered, and the use of other respirators was limited because masks would not fit beneath the welders' helmets. The problem was solved in two steps. First, an aluminum bronze patch was welded to the silicon bronze fitting in an external operation, thus making it possible to weld aluminum bronze to aluminum bronze walls during the internal welding operation, reducing the fume concentration. The second step was the adoption of a special mask made available by the U.S. Bureau of Mines, which had been designed to fit beneath welders' masks.

Mr. Brenner suggests that sheet metal contractors give careful attention to the cost of labor when submitting estimates on work to be performed for the U.S. Navy Department, because the specifications for naval equipment are quite different from those for other jobs involving steel and steel alloy materials.

### Accident Prevention a "Challenging Objective"

"A reduction in insurance rates is always desirable", said Art Mantei, "but the saving of a workman's hands is far more important than all the money paid for in-

(Please turn to page 216)

# Housing Census Heating Data

Albuquerque • Allentown • Buffalo • Lansing • Nashville • Terre Haute

SUGGESTIONS on how a warm air heating dealer can use some of the housing data available from the Bureau of Census were given in the May 1953 American Artisan. Localities covered in the reports are metropolitan

areas that are socially and economically integrated with the central city. Data for various areas has been reported regularly in American Artisan since June 1953. Additional reports will continue to appear regularly.

Types of Fuel Used in Centrally Heated Dwelling Units

	Standard Metropolitan Areas										
	Albuquerque N. M.	Allentown-Bethlehem-Easton Pa.				Buffalo N. Y.			Lansing Mich.	Nashville Tenn.	Terre Haute Ind.
	Bernalillo County	The area	Lehigh County	Northampton County	Warren County N. J.	The area	Erie County	Niagara County	Ingham County	Davidson County	Vigo County
All dwelling units.....	43,443	127,182	56,898	52,645	17,639	317,423	261,157	56,266	50,953	91,575	34,988
Number reporting heating equipment.....	39,375	121,740	54,960	50,995	15,785	302,080	248,725	53,355	48,200	86,950	33,270
Central heating.....	19,245	95,355	44,210	39,735	11,410	211,525	170,030	41,495	36,050	31,140	20,350
Coal.....	295	66,420	29,455	29,315	7,650	120,890	96,655	24,235	21,360	23,935	17,695
Wood.....	70	320	85	150	85	930	710	220	330	60	90
Utility gas.....	18,270	5,920	3,295	2,390	235	48,855	47,285	1,570	7,285	4,450	1,300
Bottled gas.....	325	450	90	130	230	595	555	40	35	25	65
Liquid fuel.....	95	19,345	9,715	6,640	2,990	33,520	20,505	13,015	6,355	865	840
Other fuel.....	100	2,390	1,260	940	190	5,365	3,295	2,070	380	1,585	305
Not reporting.....	90	510	310	170	30	1,370	1,025	345	305	210	55

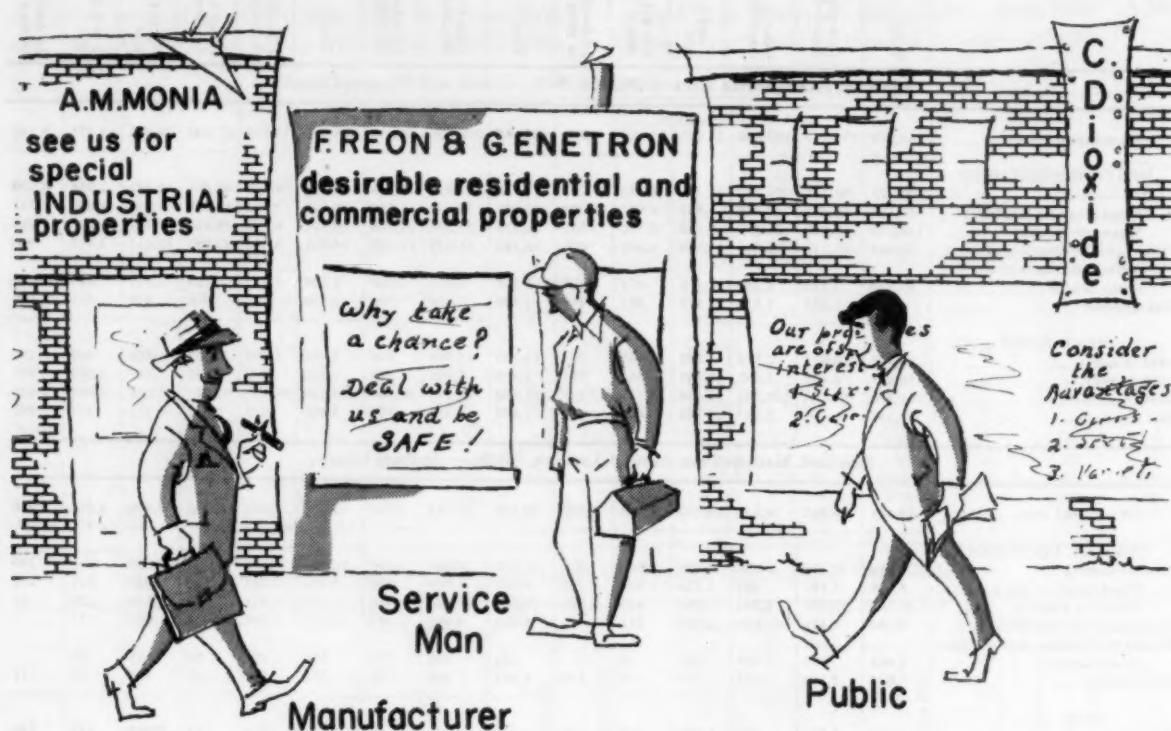
Types of Nonfarm Dwelling Units, by Type of Heating and Year Built

	Total occupied						Owner occupied			Renter occupied					
	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	Total	1 dwelling unit, detached	All other dwell- ing units	Total	1 dwelling unit, detached	Other 1, and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more
Standard Metropolitan Area of Albuquerque, N. M. — Bernalillo County															
All occupied units.....	38,555	28,745	5,795	2,025	1,110	880	23,695	21,520	2,175	14,860	7,225	4,060	1,730	1,025	820
HEATING EQUIPMENT															
Central heating.....	18,077	13,526	2,599	839	573	540	11,894	10,858	1,036	6,183	2,668	1,655	790	530	540
Piped steam or hot water....	1,441	634	221	94	194	298	635	591	44	806	43	177	94	194	298
Warm air furnace.....	16,636	12,892	2,378	745	379	242	11,259	10,267	992	5,377	2,625	1,478	696	336	242
Noncentral heating, with flue....	16,030	11,964	2,512	874	445	235	9,444	8,471	973	6,586	3,493	1,787	677	424	205
Noncentral heating, without flue; or not heated.....	3,253	2,488	463	207	39	56	1,772	1,707	65	1,481	781	419	207	18	56
Not reported.....	1,192	764	221	105	53	49	583	482	101	609	282	199	56	53	19
YEAR BUILT															
1945 or later.....	16,124	13,512	1,730	464	247	171	11,482	10,941	541	4,642	2,571	1,243	410	247	171
1940 to 1944.....	3,600	3,010	325	88	177	...	2,510	2,388	122	1,090	622	203	88	177	...
1939 or earlier.....	17,112	11,076	3,511	1,355	495	675	9,175	7,748	1,427	7,937	3,328	2,385	1,114	495	615
Not reported.....	1,633	1,148	228	117	106	34	444	444	...	1,189	704	228	117	106	34
Standard Metropolitan Area of Allentown-Bethlehem-Easton, Pa. — Lehigh, Northampton and Warren Counties															
All occupied units.....	112,925	42,620	56,755	8,010	3,800	1,740	68,610	33,660	34,950	44,315	8,960	23,560	6,615	3,545	1,635
HEATING EQUIPMENT															
Central heating.....	89,647	32,838	44,951	6,885	3,392	1,581	57,660	27,415	30,245	31,987	5,423	16,145	5,740	3,182	1,497
Piped steam or hot water....	58,051	19,803	27,716	5,943	3,163	1,426	34,914	16,309	18,605	23,137	3,494	10,222	5,048	2,968	1,405
Warm air furnace.....	31,596	13,035	17,235	942	229	155	22,746	11,106	11,640	8,850	1,929	5,923	692	214	92
Noncentral heating, with flue....	18,370	7,828	9,262	946	265	69	8,687	4,999	3,688	9,683	2,829	5,812	738	235	69
Noncentral heating, without flue; or not heated.....	3,796	1,462	2,097	92	122	23	1,614	905	709	2,182	557	1,403	92	107	23
Not reported.....	1,111	489	446	88	21	67	648	339	309	463	150	200	46	21	46
YEAR BUILT															
1945 or later.....	8,663	7,351	622	113	125	452	5,770	5,506	264	2,893	1,845	379	113	104	452
1940 to 1944.....	5,547	3,451	1,949	48	78	21	3,401	2,792	609	2,146	659	1,381	28	78	...
1939 or earlier.....	97,181	30,903	53,721	7,772	3,518	1,267	58,762	24,842	33,920	38,419	6,061	21,474	6,417	3,284	1,183
Not reported.....	1,532	917	460	77	78	...	677	522	155	855	395	325	57	78	...

## Types of Nonfarm Dwelling Units, by Type of Heating and Year Built

	Total occupied						Owner occupied			Renter occupied					
	Total	1 dwelling unit, detached	Other 1. and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more	Total	1 dwelling unit, detached	All other dwelling units	Total	1 dwelling unit, detached	Other 1. and 2 dwelling unit	3 and 4 dwelling unit	5 to 9 dwelling unit	10 dwelling unit or more
Standard Metropolitan Area of Buffalo, N.Y. — Erie and Niagara Counties															
All occupied units.....	283,965	118,145	109,840	34,425	12,965	8,590	149,055	100,000	49,055	134,910	18,145	67,740	28,455	12,275	8,295
HEATING EQUIPMENT															
Central heating.....	196,321	91,546	71,747	17,290	8,483	7,255	117,558	81,820	35,738	78,763	9,726	40,589	13,483	7,966	6,999
Piped steam or hot water.....	61,603	22,488	20,348	7,542	4,927	6,298	31,031	19,497	11,534	30,572	2,991	11,030	5,740	4,690	6,121
Warm air furnace.....	134,718	69,058	51,399	9,748	3,556	957	86,527	62,323	24,204	48,191	6,735	29,559	7,743	3,276	878
Noncentral heating, with flue.....	72,664	21,716	32,302	14,139	3,607	900	26,183	15,025	11,158	46,481	6,691	22,985	12,427	3,478	900
Noncentral heating, without flue; or not heated.....	10,860	3,422	4,266	2,476	471	225	3,521	2,071	1,450	7,339	1,351	3,198	2,116	449	225
Not reported.....	4,122	1,457	1,526	518	402	219	1,786	1,080	706	2,336	377	970	428	381	180
YEAR BUILT															
1945 or later.....	20,713	16,914	2,173	825	469	332	16,779	15,909	870	3,934	1,005	1,369	801	469	290
1940 to 1944.....	15,885	8,485	3,097	1,341	2,565	397	8,655	8,105	550	7,230	380	2,571	1,317	2,565	397
1939 or earlier.....	242,230	91,278	102,504	31,489	9,527	7,432	121,980	75,142	46,838	120,250	16,136	62,262	25,666	8,965	7,221
Not reported.....	5,137	1,468	2,063	769	404	433	1,637	843	794	3,500	625	1,537	671	276	391
Standard Metropolitan Area of Lansing, Mich. — Ingham County															
All occupied units.....	44,115	31,565	6,135	4,180	1,185	1,050	29,130	26,185	2,945	14,985	5,380	3,945	3,680	1,070	910
HEATING EQUIPMENT															
Central heating.....	31,686	22,172	5,126	2,496	976	916	21,525	19,056	2,469	10,161	3,116	3,296	2,089	861	799
Piped steam or hot water.....	5,498	2,191	882	1,133	560	732	2,167	1,608	559	3,331	583	549	945	522	732
Warm air furnace.....	26,188	19,981	4,244	1,363	416	184	19,358	17,448	1,910	6,830	2,533	2,747	1,144	339	67
Noncentral heating, with flue.....	8,364	6,471	613	1,100	157	23	5,185	4,992	193	3,179	1,479	474	1,069	157	...
Noncentral heating, without flue; or not heated.....	1,008	672	105	205	26	...	422	336	86	586	336	50	174	26	...
Not reported.....	3,035	2,248	291	379	26	111	1,997	1,800	197	1,058	448	125	348	26	111
YEAR BUILT															
1945 or later.....	6,301	4,800	160	1,040	119	182	4,367	4,277	90	1,934	523	83	1,040	119	169
1940 to 1944.....	3,511	3,342	105	27	24	13	2,909	2,819	90	602	523	28	27	24	...
1939 or earlier.....	29,208	20,670	4,911	2,238	781	608	19,730	17,233	2,497	9,478	3,437	3,056	1,813	666	506
Not reported.....	5,095	2,751	958	875	262	249	2,122	1,854	268	2,973	897	778	800	262	236
Standard Metropolitan Area of Nashville, Tenn. — Davidson County															
All occupied units.....	84,355	51,360	20,460	7,120	3,060	2,355	43,830	36,720	7,110	40,525	14,640	14,820	5,875	2,860	2,330
HEATING EQUIPMENT															
Central heating.....	29,536	15,905	6,739	3,380	1,643	1,869	17,694	14,010	3,684	11,842	1,895	3,964	2,596	1,543	1,844
Piped steam or hot water.....	5,544	1,312	901	907	823	1,601	1,252	979	273	4,292	333	743	792	823	1,601
Warm air furnace.....	23,992	14,593	5,838	2,473	820	268	16,441	13,031	3,411	7,550	1,562	3,221	1,804	720	243
Noncentral heating, with flue.....	41,675	26,185	11,131	2,989	1,046	324	18,087	15,294	2,793	23,588	10,891	8,320	2,597	946	324
Noncentral heating, without flue; or not heated.....	11,358	7,900	2,321	707	329	101	7,048	6,505	543	4,310	1,395	1,847	638	329	101
Not reported.....	1,788	1,372	270	44	41	61	1,004	914	90	784	458	180	44	41	61
YEAR BUILT															
1945 or later.....	14,160	11,548	2,132	184	179	117	10,474	9,900	574	3,686	1,648	1,558	184	179	117
1940 to 1944.....	6,536	4,207	1,793	264	89	182	3,676	3,328	348	2,860	879	1,506	211	89	175
1939 or earlier.....	61,005	33,935	15,927	6,540	2,673	1,929	28,532	22,564	5,968	32,473	11,371	11,306	5,401	2,473	1,922
Not reported.....	2,655	1,673	606	132	119	124	1,149	931	218	1,506	742	449	79	119	117
Standard Metropolitan Area of Terre Haute, Ind. — Vigo County															
All occupied units.....	30,545	23,410	4,140	1,755	950	290	19,775	18,135	1,640	10,770	5,275	2,870	1,470	875	280
HEATING EQUIPMENT															
Central heating.....	19,178	14,450	2,502	1,266	718	242	13,417	12,196	1,221	5,761	2,254	1,514	1,108	643	242
Piped steam or hot water.....	1,890	860	276	426	179	149	798	680	118	1,092	180	158	426	179	149
Warm air furnace.....	17,288	13,590	2,226	840	539	93	12,619	11,516	1,103	4,669	2,074	1,356	682	464	93
Noncentral heating, with flue.....	10,247	8,281	1,435	351	161	19	5,795	5,418	377	4,452	2,863	1,153	256	161	19
Noncentral heating, without flue; or not heated.....	672	385	136	96	36	19	327	295	32	345	90	136	64	36	19
Not reported.....	452	295	68	43	36	10	237	227	10	215	68	68	43	36	...
YEAR BUILT															
1945 or later.....	2,190	1,675	342	120	53	...	1,370	1,345	25	820	330	342	120	28	...
1940 to 1944.....	946	900	46	...	...	...	780	780	...	166	120	46	...	...	...
1939 or earlier.....	26,724	20,217	3,725	1,605	897	280	17,209	15,632	1,577	9,515	4,585	2,483	1,320	847	280
Not reported.....	675	617	28	30	...	...	405	377	28	270	240	...	30	...	...

# RESIDENTIAL AIR CONDITIONING



REFRIGERANTS — LIKE BUSINESSES — can be classified according to the type of service they perform best

## Know Your Refrigerants

Those best suited to residential cooling have low specific volume, low boiling points and other thermodynamic, physical and chemical features described here in detail



By **S. W. Reid**

**Air Conditioning Engineer  
Gilbert Associates, Inc.**

THE MECHANICAL COMPONENTS of a cooling system are of little use—despite the best in engineering design and precision manufacturing—until they are functionally combined with the chemical components which circulate inside the system.

Readers of these articles will recall that we have devoted much space to the major mechanical components—the compressor, evaporator, condenser and expansion device—but have mentioned the chemical components—refrigerant and oil—only in passing. In this and a subsequent article we shall try to become better acquainted with these important parts of a cooling system.

### **How Refrigerants Differ**

Refrigerant properties fall into three categories: thermodynamic, physical, and chemical. Thermodynamic properties have to do with such factors as temperature, pressure and heat. Physical properties have to do with such characteristics as the critical temperature, specific heat, density, viscosity, thermal conductivity, oil and

moisture solubility and dielectric strength. Chemical properties have to do with such features as stability, flammability, explosiveness, toxicity, leak detection and odor.

The data book of the American Society of Refrigerating Engineers lists over 30 recognized refrigerants. No one set of properties can be the deciding factor in making one refrigerant more desirable than another. A given refrigerant, for instance, may have very desirable thermodynamic and physical characteristics which would make it economically useful for commercial refrigeration, but because of its chemical qualities, not usable in air conditioning systems.

Ammonia is such a refrigerant. It is used extensively in large commercial and industrial refrigerating plants that are normally attended by operators. It is not used in air conditioning systems having evaporator coils directly in the air stream because of its possible toxic effects on human beings in the event of a leak. In addition, it could not be used in small packaged air conditioners having hermetically sealed compressors with

## **FIRST WE EXPLAINED FUNDAMENTALS**

. . . in Mr. Reid's series of 20 articles (concluded in the May, 1954 issue). The basic operating characteristics of residential cooling equipment were described in detail.

## **NOW SPECIAL ATTENTION TO SPECIFIC PROBLEMS**

. . . in a new series based on the author's wide experience in the field. Sample articles:

- ▶ How dealers can train personnel — service men, installers, dispatchers, clerical help — in enlarging their air conditioning departments
- ▶ Converting an existing gravity warm air system to a residential air conditioning system
- ▶ Typical home owner "complaints" about conditioning equipment, how to diagnose the trouble in each case and carry out the repair required
- ▶ Zoning residential air conditioning (special problems, instructing home owner, etc.)

motor windings exposed to the refrigerant because of its deleterious effects upon copper and brass in the presence of a slight amount of moisture.

### Applications Suited to "Freon-11"

Another refrigerant, "Freon-11," has thermodynamic and physical properties that make it desirable for use in large systems having centrifugal compressors characterized by high displacements at relatively low compression ratios per wheel. This refrigerant would not be practical for use in a system having a reciprocating compressor, since the high specific volume (cu ft per lb) of its vapor makes it necessary theoretically to pump 4.27 times as many cfm of vapor to produce a ton of cooling (at a 40 F evaporator temperature and 100 F condenser temperature) as is required by the refrigerant "Freon-12." The actual difference in compressor displacement would be even greater, since the compressor handling the lighter density "Freon-11" would probably have a lower volumetric efficiency.

The initial cost of the larger compressor required would not be the only disadvantage of using "Freon-11" with a reciprocating compressor. Operating costs would be higher, reflecting greater friction horsepower in the larger machine. There would also be potential trouble with air leaking into the system, for at an evaporator temperature of 40 F, the "Freon-11" system would be operating at a pressure of 15.61 in. mercury vacuum as compared with a gage pressure for "Freon-12" of 36.98 psi.

### Limitations of CO<sub>2</sub>

A third refrigerant which illustrates the need for considering all properties is carbon dioxide. This chemical compound is, like ammonia, one of the older refrigerants. It has a refrigerating effect per pound comparable with the "Freon" compounds. This, plus a rather low specific volume, results in a theoretical compressor displacement (at 5 F evaporator temperature and 86 F condenser temperature) of only 0.94 cfm per ton as compared with a corresponding requirement of 5.82 for "Freon-12."

Carbon dioxide was used in the early days of refrigeration and air conditioning principally because of its safety in case of a leak. Early refrigerated ships used it almost exclusively because of its non-toxic, non-explosive nature.

In spite of the advantages in certain of its characteristics, carbon dioxide has disadvantages which relegate it to a position of minor importance in today's list of refrigerants. One disadvantage is the relatively tremendous operating pressures which are higher than those of any other listed refrigerant. At operating temperatures of 5 F evaporator and 86 F condenser temperature, carbon dioxide has corresponding pressures of 317.5 psig and 1031.0 psig. These compare with pressures for

"Freon-12" of 11.8 and 93.2 psig. Even though the compression ratio between the temperatures given above is less for carbon dioxide as compared with "Freon-12" (3.15 compared to 4.07), the absolute pressures require heavy and costly equipment that can withstand them.

Carbon dioxide has another disadvantage in that its critical temperature is only 87.8 F. This means that vapor at a higher temperature cannot be made to condense no matter how much the pressure is increased. The low critical temperature limits the application of this refrigerant to systems where water or other means is available for condensing at a relatively low temperature.

### No Ideal Refrigerant

The cases described above show, in general, that no one refrigerant possesses universally desirable characteristics. Just as with mechanical equipment, present day refrigerants are actually "built" for their intended applications. The search for new refrigerants is not complete. As each new refrigerant is created all of its properties must be carefully and thoroughly studied.

### Some Desirable Properties

Let us now narrow our attention to some of the significant characteristics a refrigerant must possess to make it desirable for use in air conditioning systems.

The thermodynamic properties having to do with evaporating and condensing temperatures and their corresponding pressures are of prime importance. Water, for instance, could be used as a refrigerant. It will boil at 40 F just as will "Freon-12" or "Freon-22." To accomplish this, however, it is necessary to maintain an evaporating pressure of 0.122 psia (far below atmospheric pressure, which is 14.7 psia) compared to 51.68 psia and 83.72 psia, respectively, for the two "Freon" refrigerants. The operating pressures of the refrigerant should be above atmospheric pressure so that air will not be forced into the system in the event of a leak. On the other hand, they must not be so high as to preclude the use of lightweight, low cost construction materials in the high pressure side of the system.

### High Latent Capacity Needed

Another thermodynamic property that is important is the amount of heat a pound of refrigerant can absorb in changing from a liquid to a vapor, and the amount of heat that must be removed from each pound to change the vapor back to liquid. This property is a factor in sizing equipment. For instance, the compressor displacement required for a given capacity depends upon the amount of heat that can be absorbed by each pound (latent heat of vaporization) and the number of cubic feet occupied by that pound (specific volume) at evaporator pressure. A given compressor can be rated about 60 per cent higher in capacity when using "Freon-22" as

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WEATHER IS SEALED OUT on a permanent basis in this Prudential Building in Houston, Texas. For approximately 12,000 lbs. of non-rusting, enduring Revere Sheet and Strip Copper were used for various flashing applications, as well as gutters and expansion joints.

Inset photo directly above shows where Revere Copper was used to flash the planting box (left) and the stone parapet where it joins the roof (right).

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compared with "Freon-12." Conversely, an air conditioner using "Freon-22" would require a compressor of 40 per cent less displacement than a unit of equal capacity using "Freon-12."

The discharge temperature at the compressor is another thermodynamic characteristic of the refrigerant. It is important for a designer to have this information in advance. If the discharge temperature is allowed to exceed certain limits, a breakdown of the oil may ensue, resulting ultimately in cylinder damage and prematurely worn bearings.

Under physical properties we listed earlier the critical temperature. This is largely of academic interest, since it is so high for the common refrigerants of today. It is low, however, for carbon dioxide, as mentioned previously. The critical temperature is the highest temperature at which the substance can exist in liquid form. Thus, a refrigerant vapor above the critical temperature cannot be made to condense, regardless of the pressure which is applied to it.

### Should Have Low Specific Heat

Another physical property is the specific heat of the liquid. This value is important, as the following description will show. When liquid leaves the condenser it is warm. In passing through the expansion device its pressure is reduced, and, at the same time, the temperature is reduced. The temperature reduction takes place at the expense of some of the refrigerant which boils off to provide the cooling. The more liquid that boils off or flashes to vapor during the pressure reduction, the less is left to do useful refrigeration in the evaporator. Since the specific heat of liquid is the amount of heat needed to change the temperature of one pound of it by 1 F, it follows that the lower the specific heat of the liquid refrigerant, the less will be the amount of heat that must be removed to lower its temperature and the lower will be the loss of useful cooling due to flash gas.

Although the specific heat of the liquid should be low, a high specific heat in the vapor is desirable. To understand this, follow a pound of refrigerant through the evaporator to the compressor. The pound enters the evaporator as liquid. At some point in the evaporator the last particle of the pound has just changed to vapor. From this point on to the compressor, the vapor absorbs additional heat which raises its temperature and increases its volume. A vapor having a high specific heat can absorb a given amount of heat with less temperature and volume change than can a vapor with low specific heat. Since the compressor has a fixed displacement, it follows that it can handle more pounds of refrigerant having the lower volume per pound.

### Density and Viscosity Important

Density and viscosity are additional physical properties of importance. Density is the weight per unit of volume

(lb per cu ft) whereas viscosity is a measure of the internal friction in resisting flow (water has a lower viscosity than molasses). In both liquid and vapor flow, density and viscosity are factors affecting line, valve, and orifice sizing. High density, considered alone, would seem to be desirable, but because it is usually paralleled by high viscosity, apparent advantages in line sizing cannot be realized.

### Other Physical Properties: Thermal conductivity

The ability of a substance to conduct heat is expressed as its thermal conductivity (Btu per hr per sq ft per in. thick). Since this physical property is a factor in determining the amount of surface needed in the evaporator and condenser, high thermal conductivity in a refrigerant is desirable. Hermetic motors which depend upon suction vapor for cooling are sometimes limited in loading by the ability of the refrigerant to conduct heat away at a rate fast enough to prevent overheating.

### . . . Dielectric Strength

Dielectric strength has to do with the ability of the refrigerant to resist the flow of electric current and is especially important in refrigerants used in hermetic compressors where there is direct contact between the refrigerant and the electric motor. A high dielectric strength is desirable to keep the possibility of short circuits in the motor winding to a minimum.

### . . . Oil Solubility

Among the many investigations that must be made when a new refrigerant is being studied is the way it behaves when it is mixed with oil. This behavior, in part, has to do with the oil solubility of the refrigerant and is very important since intimate contact between these substances is unavoidable. Some refrigerants can be mixed with oil in any proportion. Others can be mixed in limited proportions, whereas still others will not mix at all. Some refrigerants under certain conditions cause all the oil in the compressor crankcase to foam and leave. Unless the oil returns promptly, severe damage to the compressor may follow. The only place where oil can do any good in an air conditioning system is in the compressor. A refrigerant which helps to keep it there is more desirable in this respect than one that does not.

### . . . Moisture Solubility

In the first part of this article we listed moisture solubility as an important physical property of refrigerants. Actually, the entire subject of moisture in reciprocating systems is of vital importance and has undergone extensive research.

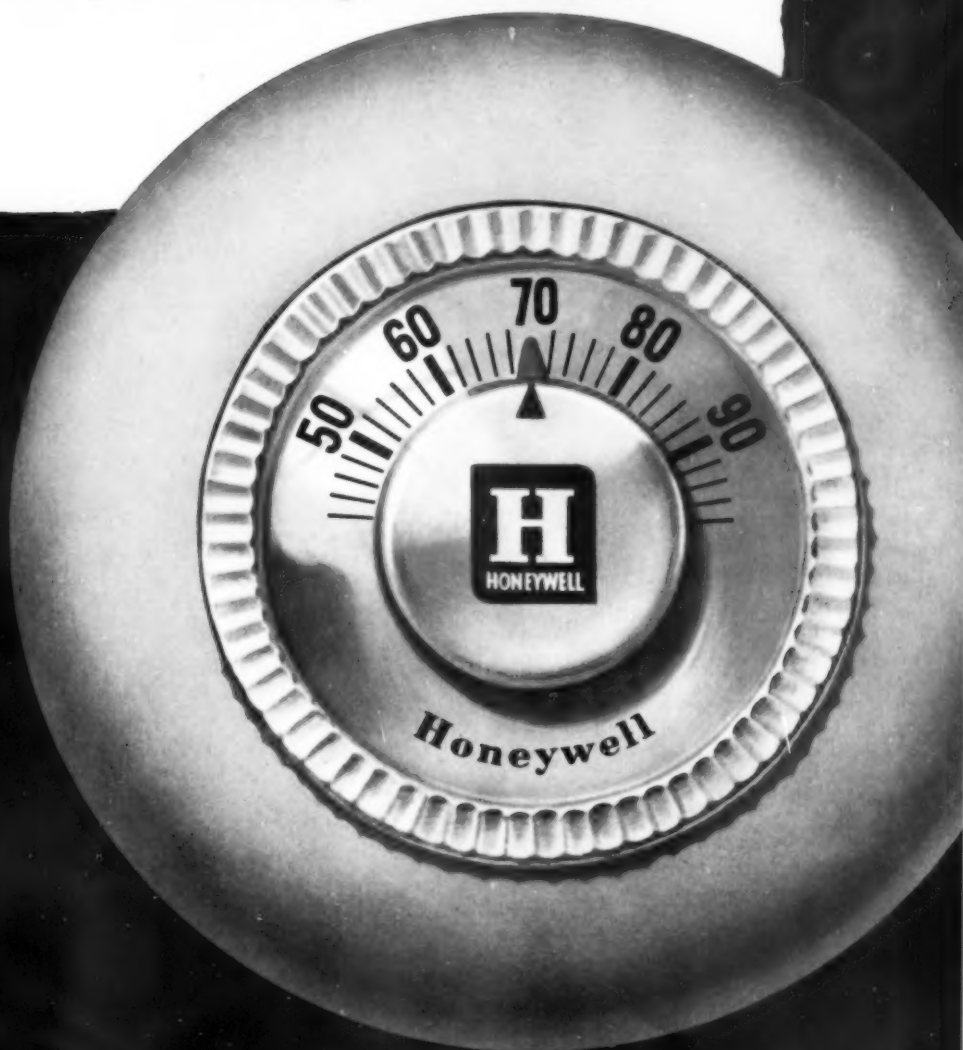
Looking first at the refrigerant, one should know that water in varying amounts forms a solution with most



*the Honeywell*

**ROUND**

**America's Largest-Selling Thermostat**



*Outmodes all others!*

# the new Honeywell Round

...taking the nation by storm!

DYNAMIC HOMEOWNER APPEAL...

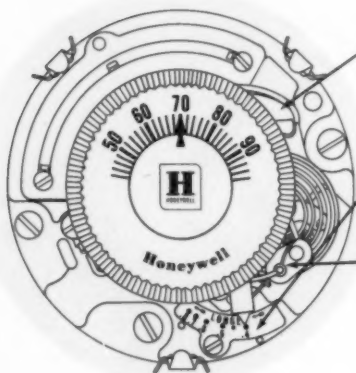


The Honeywell Round offers the first really new idea in thermostats in years . . . new shape . . . new beauty. The simple round design and jewel-like appearance are a complement to any room. Homeowners love it.

**Cover ring snaps off for decorating.** Exciting new feature is the snap-off cover. It comes in a beautiful silver-bronze finish, yet can be painted by the homeowner to match the color scheme of any room in just a matter of minutes.

## BEST MECHANICAL DESIGN EVER

In addition, there are real improvements *inside* the Honeywell Round—a reflection of the engineering skill of the world's oldest and largest manufacturer of automatic controls.



**Mercury Switch.** A hermetically sealed mercury switch, actuated by the coiled bimetal element, gives positive, quick make-and-break switching. No more service calls to clean dirty contacts.

**Adjustable Heater.** Your inventory problems are simplified. Featured in this new thermostat is a heater which is adjustable to the current characteristics of most primary controls. It can be set to operate the burner in the timed cycles needed for constant delivery of heat and good temperature control.

**Honeywell TM.** Honeywell's Time Modulation feature means better performance from your heating plant. TM automatically varies the burner cycles according to the load to assure a smooth flow of heat for uniform room comfort in all weather.



## THE HONEYWELL ROUND IS GOOD FOR YOU AND IT'S GOOD FOR YOUR CUSTOMERS

**For new installations.** Take advantage of the fresh demand of this nationally advertised new thermostat. Make it a feature of the heating jobs you sell. SPECIFY THE HONEYWELL ROUND. Better still, specify a complete, matched system of Honeywell controls.

**For replacement business.** Use the Honeywell Round as a part of your everyday service campaign. You'll find a new source of profit in replacing old-style thermostats with this sleek new model.

MINNEAPOLIS  
**Honeywell**

MINNEAPOLIS 8, MINNESOTA  
TORONTO 17, CANADA



*First in Controls*

refrigerants. The amount of water that can be dissolved in a refrigerant varies with the different refrigerants and is a function of the temperature. The higher the temperature, the more water can be held in solution. As the temperature of a solution falls below the saturation level, free water will separate from it.

The maximum amount of water that can be held in solution by "Freon-12" at 40 F is on the order of 0.0030 per cent by weight. "Freon-22" can hold 70 times as much at the same temperature. The more water a refrigerant can hold in solution the more desirable, since there is less possibility of the free water being separated. This further means that there is less likelihood that trouble will be caused by the free water forming ice at the expansion device and clogging it.

### Moisture Elimination Essential

In addition to the possibility that it may form ice, moisture in a system reacting with the refrigerant, the oil, and possibly air can cause harmful corrosion and eventual failure of delicate, polished parts. It can also attack certain resinous hermetic motor insulations. For certain refrigerants the amount of water necessary for corrosion is less than that needed to cause expansion device freeze-ups. For others, such as "Freon-12," experience has shown that if no freeze-ups occur, the moisture level of the refrigerant is tolerable from the corrosion standpoint.

One of the effects of moisture in a refrigerant is known as copper plating. Many theories have been advanced to explain why small amounts of copper in a system are sometimes dissolved in the refrigerant-oil mixture and are deposited usually on steel bearing surfaces. Recent studies have shown that copper plating is largely eliminated by proper dehydration of the system, the refrigerant, and the oil.

### Removing Moisture

Since moisture in a refrigerating system does constitute a major problem, it is important to know how it gets in and how to get it out. Reputable manufacturers use highly developed techniques for drying components and keeping them moisture free. It is possible, however, for faulty processing to leave residual moisture.

Like the equipment manufacturer, the makers of the refrigerant and the oil have production controls which keep moisture percentages at or lower than predetermined minimums. Again, however, it is possible for moisture to be introduced into a system by means of sub-standard refrigerant or oil.

Perhaps the most common way for moisture to enter a system is with air that gets in when a unit is being field serviced. Service personnel must be instructed in the proper procedures to keep out both air and moisture. They should also be cautioned to install a good chemical drier (unit containing activated alumina, silica gel, or

other recognized drying agent) in the system that has been opened in the field for repair.

### Chemical Features: Stability

Among the desirable chemical characteristics a refrigerant should have is high stability. This means that the chemical structure of the refrigerant resists decomposition and retains its homogeneity under all conditions of operation and through all contact with the various metals and materials in the system. Few refrigerants are absolutely inert. The "Freon" refrigerants, for instance, cause natural rubber to swell or dissolve. Synthetic rubbers have been developed which can be used without the breaking down of their molecular structure. Ammonia is another example of a refrigerant that is not inert. This substance, in combination with moisture, attacks copper and copper alloys and is limited to systems without them.

### . . . Flammability, Explosiveness, Toxicity

The flammability, explosiveness, and toxicity of a refrigerant are chemical properties that are most important from a safety standpoint, especially in the larger air conditioning systems where large quantities of refrigerant and many people are involved. The National Board of Fire Underwriters is vitally concerned with these properties and has rated each refrigerant with respect to its relative safety. Many governmental codes prohibit the use of refrigerants which constitute a hazard.

### . . . Leak Detectability

One of the useful chemical properties that makes a refrigerant desirable is the degree to which it lends itself to leak detection. A leaking system is one of the most common causes for service calls. A refrigerant leak that can be found quickly will cost the customer less money than will one requiring a lengthy procedure of search. Fortunately, the "Freon" compounds — the common air conditioner refrigerants — can be detected with a simple halide torch using acetylene or alcohol as a fuel. The torch has an exploring tube which brings suspected air in contact with the flame and a piece of metallic copper. If the air contains "Freon" vapor, there is a reaction with the copper which produces a characteristic bright greenish blue color to an otherwise almost colorless flame.

### . . . Odor and Its Use

The final characteristic of a refrigerant listed with the chemical properties is odor. Odor can be desirable as a factor in leak detection, provided its permeation is limited to spaces occupied by people who will recognize and understand it. With refrigerants such as the "Freon" products, however, which for practical purposes are non-toxic and non-hazardous, the warning of a leak which an odor would provide is not necessary.

# Use Sales Tools To Build Volume

Literature, demonstration models and other aids offered by manufacturers can help dealers plan aggressive sales programs. But selection must be based on thorough knowledge of local conditions

By W. J. Hoeing

Sales Manager, Air Conditioning Div.  
Servel, Inc.

THROUGHOUT THE YEAR, dealers all over the country can make good use of the materials (literature, sales promotion materials, etc.) supplied by manufacturers of heating and air conditioning equipment. To make the most of these materials the dealer must be aware of the wide variety available, and he must also be a good judge of local conditions so that he can select the materials best suited to his own prospective customers. No manufacturer can do the dealer's "local thinking" for him.

The materials available fall into two main categories — selling aids and technical aids. Technical aids, which cover sizing, installation and servicing, will be covered in a subsequent article. It should be pointed out, however, that technical aids — properly used — also do a job of selling; satisfied customers tell their friends about equipment which provides comfort because it has been properly sized, installed and serviced.

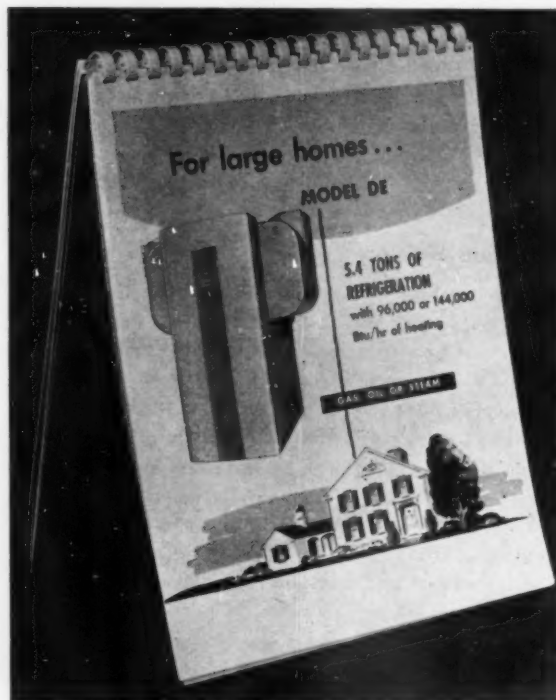
As we will see from the variety of aids offered, manufacturers' sales promotion catalogs and materials can give the dealer ideas not only about the sales tools themselves, but also about new markets (for example, how to develop mailing lists) and sales training programs.

## Materials Are Catalogued

One way to get a quick survey of the aids available is to look through the catalogs of sales promotion materials put out by the various manufacturers. These cata-



MINIATURE DEMONSTRATION UNITS, such as this one of a 2 ton air conditioner, help the salesman give the prospect a more vivid picture of the item



EASEL VISUALIZERS enable the salesman to point to large illustrations for emphasis. Other visualizers may be left with the customer as a reminder until the salesman returns





use  
**CRUCIBLE STAINLESS**  
 for  
**lower overhead**

Say good-bye forever to heavy maintenance costs when you specify Crucible Rezistal® stainless steel for such vital building components as roofing . . . gutters . . . downspouts . . . ductwork.

For Crucible stainless is so resistant to corrosion that even heavy industrial atmospheres leave it virtually untouched. Its high reflective qualities help keep temperatures comfortable during hot weather. Moreover, since stainless is so strong and tough, light-weight sections do a man-sized job — thereby saving you money both in metal and labor costs.

Of course, Crucible stainless steel is easy to work with—to bend, solder and weld . . . to form or machine. That's why it's used more and more wherever there's a need for a strong, hard, tough, corrosion-resisting metal. Let Crucible help you, too, decide which of the many grades of stainless will do your job best. For fast, helpful information—call Crucible.



54 years of *Fine* steelmaking

**CRUCIBLE**

first name in special purpose steels

**STAINLESS STEELS**

CRUCIBLE STEEL COMPANY OF AMERICA. GENERAL SALES OFFICES, OLIVER BUILDING, PITTSBURGH, PA.  
 REZISTAL STAINLESS • REX HIGH SPEED • TOOL • ALLOY • MAX-EL • SPECIAL PURPOSE STEELS

Canadian Distributor — Railway & Power Engineering Corp., Ltd.

logs illustrate and describe the various mailing flyers, salesroom exhibits, etc., which are available.

Some manufacturers issue a kind of bibliography — a catalog to the catalogs. Such an introductory publication often gives a general description of the company's line, briefly describing the markets for which its equipment is intended. Also listed are the various types of literature and materials available, both sales and technical, with brief descriptions of the purpose of each.

### Should See Detailed Sales Catalog

For planning a sales campaign, the dealer would next go to the manufacturer's detailed sales catalog which lists, illustrates and describes all the promotional material offered. He could then look for further information on certain types of sales tools which were briefly mentioned in the introductory bulletin or bulletins.

Sales promotion catalogs are often divided, for convenience, into such categories as sales literature, direct mail, promotional tools, sales training materials, display materials, publicity, special promotional materials for specific programs and other data. A price list is usually included.

### Selecting Sales Literature

Sales literature is developed to sell the prospective customer on the comfort, health and other benefits of air conditioning. However, individual sales pieces are slanted toward different groups — some for the owners of small homes; some, the proprietors of small commercial establishments (these would emphasize increase in business resulting from a cool store); etc. Some sales literature which stresses house-cleaning benefits might appeal more to the housewife, while more technical material would appeal to others.

In addition, the completeness of coverage should vary depending on the specific customer. Do you need literature covering a complete line of conditioners, or would illustrations and descriptions of just one or two types of window conditioners be sufficient for your door-to-door campaign? That depends on the neighborhood, the people at the receiving end — and they can only be judged on the spot by the dealer.

In the same way, dealers must use discretion in selecting direct mailing pieces. Obviously, mailings on the benefits of modernization through air conditioning should not be sent to a new housing development.

The dealer must ask himself what type of mailing would be most important — sales letters, stuffers, special mailing campaigns, large post cards, etc. Each type can serve a different purpose.

### Judging Effectiveness

How can you judge the effectiveness of the mailings described in manufacturers' catalogs? There are a few

basic standards. Sales letters should contribute to the "personal approach." They should leave space for the letters to be personally addressed. They should start with an eye catching, interest-getting statement or question which will be explained in the body of the letter. These letters should state clearly what action the prospect should take and should tell *why*. Most manufacturers recommend that such letters sign off with an authentic signature.

Envelope stuffers are intended to cover sales points in a concise, clear way. They often cover one particular product only. Most manufacturers' catalogs recommend that such stuffers be sent out with every statement to continually remind customers of the products handled.

Large post cards are often effective as "attention getters" — to be sent out before a special sales letter in preparation and to add to the letter's impact.

Some manufacturers also offer special mailing campaigns designed to be sent out as a series.

### Developing Mailing Lists

A number of sales promotion catalogs not only list what's available, but offer suggestions as to how the dealer can get going on a good mail campaign. They list sources for developing mailing lists — such as city directories, building permits, membership lists of various appropriate organizations, government lists, credit rating books, etc. No mailing campaign is stronger than the list on which it's based — and here, the dealer is on his own. He can get ideas on what to use from manufacturer's catalogs, but he'll have to judge the mailing pieces offered on the basis of their inherent impact and the *type* of prospects on his own specific lists.

### Which Promotional Tools?

Most manufacturers of residential air conditioning equipment offer three main types of promotional tools — sales visualizers, sales props and hand-out materials. Dealers must judge whether or not sales visualizers should present the general characteristics of the products, or should be directed towards any specific group. For instance, a visualizer might illustrate and dramatize the benefits of cooling in terms of consumer benefits, with large illustrations leading through the complete sales story. Some visualizers are designed to be kept by salesmen; others may be given to prospects as reminders until the salesman calls again. Also offered are easel type visualizers to which the salesman can point to illustrate his statements.

Sales props can be very useful. They include demonstration models — such as sample thermostats (to show how easy it is to control heat) and small scale reproductions of air conditioning units with the parts labeled.

Give-away materials should, of course, be geared to the recipient. Manufacturers offer give-away binders, rulers (suitable for architects and others), ash trays,

# Years ahead!

Compact "package" lets you install tomorrow's comfort today



## Mueller Climatrol

NEW COMPANION UNITS

**BRING YOU ADDED BUSINESS  
NOW—ON YEAR-AROUND HEATING AND COOLING**



**Type 904**

**Self-Contained Cooling Unit**

— For installation in stores, restaurants, etc. — or with duct systems in homes with radiator or radiant heat. Complete refrigeration system with blower and filters. Can be installed with steam coil for heating. Available with discharge grille, or can be used with duct-work. 2, 3, 5, and 7½ hp.

Once again, Mueller Climatrol has responded to your needs. The new companion winter-heating and summer-cooling units permit you to sell the *right size* in both heating and cooling units, irrespective of climates.

The heating unit shown at left above is available in four sizes — 80,000, 100,000, 125,000 and 150,000 Btu input. The type 906 cooling unit, at right above, is available in 2-hp and 3-hp sizes. Each size of the heating unit may be interchanged with either of the cooling models—thus giving you real flexibility.

You can offer prospects the last word in comfort with new Mueller Climatrol

engineering — new efficiency . . . new, attractive styling . . . new, handsome Mountain Spring Green finish.

You can talk cleaner living . . . better health . . . more convenience . . . less depreciation . . . greater comfort.

Write for further information on why you can count on Mueller Climatrol companion units to turn more prospects into buyers.



**Mueller  
Climatrol**

D-159-12

2030 R. Oklahoma Avenue, Milwaukee 15, Wisconsin

etc. — all with product names as added reminders to the prospect.

### Displays Should Operate

The dealer can select, in addition, display materials — the stay-at-home cousin of the sales promotion props which go out with the salesmen. Displays can point up either products or the dealer's shop (perhaps connecting it with nationally known brand names). It is suggested by many manufacturers that showroom product displays should be, if possible, operating displays. Many different types of displays are offered — including set-ups combining signs or posters in heavy cardboard with operating units. Dealers can also use demonstration equipment in model home promotions and home shows.

It is often useful to identify a shop with signs available from manufacturers — signs that include the dealer's name and mention residential heating and cooling as well as the name of the manufacturer (a name which will be familiar to prospective customers). Model

home promotion and site signs, truck identification signs, etc., may be obtained from manufacturers.

Many manufacturers offer pamphlets on publicity which stress all the possible items which might have news value and which the dealer could release as news stories in local papers. New kinds of products, price changes, completion of an outstanding or interesting job, expansion of business, personnel changes, promotion and anything of interest to the community — all these might be published in local papers.

Dealers can also get help on sales training from manufacturers, who furnish technical material which can be used for product training. Some types of aids — such as templates — can be used for on-the-job training. Literature also is offered which tells the salesman how to "create prospects" (how to develop prospect lists), how to plan the day's work, and discusses related topics. Hints are also offered the dealer on how to select salesmen — what qualities to look for. Again, as on all other points, the dealer himself must be selective, trimming down all recommendations to his own operation.

## New Way to Measure Air Infiltration On the Job

A PORTABLE air infiltration meter designed by C. W. Coblenz of the National Bureau of Standards provides an improved means for determining the rate of infiltration of air around windows and doors from the outside of a building.

In the past, precise infiltration measurements have been restricted to laboratory installations because the equipment was cumbersome. The NBS instrument, however, being portable and compact, lends itself especially to field investigations. It can be employed for tests in buildings without greatly inconveniencing the occupants and is expected to be of value in obtaining more comprehensive and precise data than is now available on that part of heating and air conditioning loads incident to infiltration in buildings.

Using a method developed by W. G. Marley of England, testers measure the change in concentration of a tracer gas, due to infiltration of outside air, as an index of the air change rate. Since it has been shown that the number of air changes occurring during a given time is equal to the natural logarithm of the ratio of the tracer gas concentration at the beginning and at the end of the time interval, absolute concentration measurements are unnecessary. Only the percentage change in concentration need be measured, and this can be determined readily by noting the change in thermal conductivity of the tracer gas-air mixture as the test progresses.

It was found that helium is very satisfactory as a tracer gas because of its high thermal conductivity, when compared to air.

## Atom Improves Metallic Coating Process

THE ATOM now helps produce better steels as well as bombs, according to Armco Steel Corp., which recently disclosed that a fission product of uranium is being used in a new gage which continuously measures the thickness of metallic coatings on a rapidly moving steel strip.

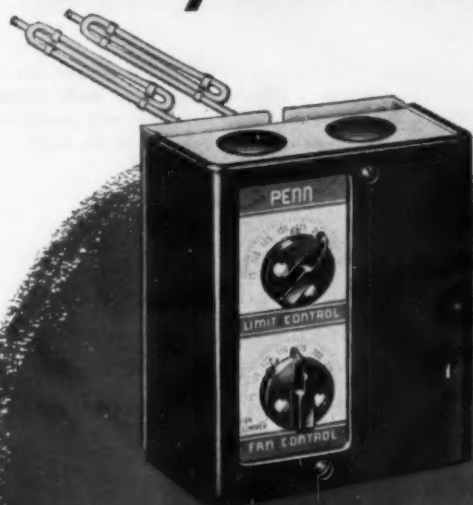
Initial application of the atom-powered instrument is in the company's continuous zinc coating process. The gage not only continuously measures the thickness of the zinc coating but does so along the length of the

strip, across its width and on both sides. The gage makes possible improved quality control and increased efficiency in coating operations, according to the company, and also creates the opportunity for automatic control of the coating process. Formerly, zinc coating weight was determined by chemical analysis of samples taken from finished sheets or coils. With the new process, the weight of the coating can be determined instantaneously only a few minutes after the steel strip leaves the zinc pot.



# try 'em

## on your next heating job!



Type 530 Combination Fan and Limit Control with new mounting bracket makes installation simpler and easier in cramped quarters or dim light. Available in single units for Fan only and for Limit only.



Type 442 Safety Limit or Opening Inversion Control for hot water jobs features close differential and "trigger-switch" response.

### HERE'S WHAT YOU'LL DISCOVER...

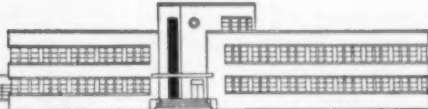
- ✓ **FASTER RESPONSE**
- ✓ **GREATER ACCURACY**
- ✓ **MORE DEPENDABILITY**
- ✓ **EASIER TO INSTALL**

... and, you'll discover that suddenly your customers are more satisfied ... that costly, profit-eating service call-backs are a thing of the past ... that you'll sell more, make more!

In both warm air and hot water installations, heating men know from experience that Penn's liquid-filled power element combines greater sensitivity with dependable performance year after year. They have learned that Penn's compact, totally-enclosed snap-acting contact mechanism ... "sight-set" calibrated dials ... and other features make Penn controls "tops" for any heating system.

Try 'em on your next heating job and you'll agree. Want more information? Write **Penn Controls, Inc., Goshen, Indiana.** Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.

# PENN



## AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES



THE DEALER LEARNS from his banker that he can now get a loan from the local bank because the Small Business Administration will participate for an amount up to 90 per cent of the total

# How to Get Federal Loans

Does your company qualify as one of the small businesses entitled to loans from the federal government? A new SBA leaflet answers this and many other related questions

SOURCES of federal loans which are of major interest to small business owners are described in a new leaflet issued by the Small Business Administration. Entitled *Loan Sources in the Federal Government*, the booklet is No. 52 in the series of management aids for small business. It may be obtained free from all field offices or by writing the SBA, Washington 25, D. C.

The fundamental requirements that must be met to obtain a government loan are described as follows:

- "1. Financing from private, commercial sources must not be available on reasonable terms.
- "2. There must be reasonable assurance of repayment.
- "3. The loan must be in the public interest."

## Numerous Agencies Listed

The leaflet points out that there are numerous federal agencies authorized to make, guarantee, or insure loans to deserving individuals or groups. These include the Veterans Administration, the Treasury Department, the Federal Reserve System, the Department of the Interior, the Housing and Home Finance Agency, and others.

In addition to making direct loans, the government also guarantees or insures loans, and in this way opens

up credit resources which would not otherwise be available.

Most government loans may be classified as business, agricultural, housing, or international financing, and these types are discussed separately in the leaflet.

## SBA Lends for Expansion, Other Needs

The first section of the leaflet is devoted to commercial, industrial and financial loans. It begins with the business loan program of the SBA, which is designed to assist small enterprises — manufacturers, service establishments and distributors — that are independently owned and operated and not dominant in their fields. (Disaster loans are also granted to businesses which have suffered damage from storms, floods, etc., and whose areas have been designated "disaster areas.")

The business loans are intended to help in financing plant construction, conversion or expansion, including the acquisition of land; to provide for buying equipment, facilities, machines, supplies or materials; to furnish working capital for use in manufacturing equipment, supplies etc., for war, defense or essential civilian

(Please turn to page 116)



## There's money to be made in maintenance-free signs



ENDURO signs can be all sizes...all designs. You can fabricate ENDURO on your present equipment. Your distributor and Republic can give you the fabricating tips that will get you started right.

The opportunity is wide open. And, Republic ENDURO Stainless Steel gives you the sales power to cash in on it. Businessmen want signs that are bright, attractive, easy to maintain and long lasting. ENDURO fills the bill.

Sell ENDURO signs and you sell business identification that's maintenance free. You can tell customers that your ENDURO signs are ready for a lifetime of weather. No rusting. No corrosion. An occasional washing removes all dust and soil. With ENDURO, there's no need for the expense of weekly "polish up the brightwork" jobs.

There's money to be made fabricating ENDURO. Your ENDURO distributor will help you get started. Republic will help, too. Just write:

### REPUBLIC STEEL CORPORATION

Alloy Steel Division • Massillon, Ohio

GENERAL OFFICES • CLEVELAND 1, OHIO

Export Department: Chrysler Building, New York 17, N. Y.

**REPUBLIC**  
**ENDURO STAINLESS STEEL**



Other Republic Products include Black, Galvanized, Galvannealed and Electro Paintlok Sheets — Toncan Iron Sheets — Bolts and Nuts — Tubing



Mor-Sun Forced Warm Air Furnaces offer a new standard of quality for better home heating. Thanks to Mor-Sun's design and operational superiority—at competitive prices—home heating contractors who display the Mor-Sun trade mark are doing more business with less effort and at a greater personal profit. If you don't have all the facts about Mor-Sun's tremendous potential, send us your name and address today. We'll send you all the details on this newest standard of home heating quality and comfort.

**MOR-SUN FURNACE DIVISION**

MORRISON STEEL PRODUCTS, INC.  
609 Amherst Street, Buffalo 7, New York

Manufacturers of gas and oil operated forced warm air furnaces and air conditioners in styles and capacities for every heating and cooling requirement.





IN ONE CASE, inspection showed that no insulation had been provided for the ductwork and that air vents (located in crawl space) could not be closed during winter. Also, lack of clearance made it impossible to pass insulation between the top of the duct and the floor joists

## Reduce Excessive Heat Loss

- by insulating ducts
- by equipping air vents with insulated doors

## ...and Smoke

- by providing sufficient combustion air

**By C. T. Baker**  
Consulting Engineer

HOME OWNERS sometimes complain that their heating systems fail to provide comfort during periods of low outdoor temperature, particularly when the cold weather lasts over a period of several days. Recently, I was requested to inspect the heating plant of a modern, two story brick house that was about four years old. The owner said that the distribution of warm air was inadequate to assure comfort in all rooms when outside temperatures were low.

The heating system consisted of a warm air, gas fired furnace with the usual arrangement of ducts. A motor

driven fan assembly and air filters were included in the installation. In the full size basement there was ample room for the heating plant and adequate head space to accommodate all of the ductwork.

Not only were the rooms inadequately heated, but monthly fuel bills were about double what the owner had been led to expect.

### Ductwork Not Insulated

An inspection disclosed that no insulation had been provided for any of the ductwork, and to make matters worse, there were in the crawl space walls a number of grilled air vents that could not be closed during the winter months. One such vent was directly opposite a large duct, admitting outside air at a point just 24 in. from the duct.

When temperatures outside are low, it is, of course, necessary to increase the operating time of the furnace so that heat lost through the exterior walls will be replaced rapidly enough to maintain satisfactory room temperatures. Quite naturally, in this case, this process required greater release of heat in the furnace which, in turn, was reflected in a higher rate of gas flow through the meter.

Evidently, the heating contractor had no notion that the owner would provide duct insulation later at his own expense, since for the most part, the ducts were installed within 1/16 in. or less of the floor joists supporting the floor above the basement. Lack of clearance precludes the possibility of passing insulation between the top of the duct and the floor joists, which are placed on about 10 in. centers.

As the owner does not wish to pay the exorbitant cost of operation, he is arranging to have the ducts insulated

in the best manner possible under the circumstances and will provide insulated doors for the ventilators so that they may be closed during the winter season.

Another point of interest concerning this particular home heating system is that in order to locate one large duct in a way so that it could easily be connected to the warm air inlet grills, the floor joists were cut away to a depth of 4 1/2 in. Actually, there was no reason to mutilate the floor joists in this manner, as proper layout of the ductwork with such adequate headroom available would have solved the problem. As it now stands, much of the floor area immediately above the point where the joists were cut away has already settled.

Quite naturally, the owners of this home are doubtful about the ability of some heating contractors.

### The Case of the Smoky Furnace

A large two story home was heated with a system that had worked entirely satisfactorily over a period of years. However, after the property was sold and occupied by the new owner, trouble was experienced with a smoking chimney — to which the neighbors objected — and there was difficulty in providing enough heat to insure comfortable temperatures on cold days.

An investigation disclosed that the new owners, in making changes in the arrangement of several small rooms in the basement, had practically cut off the supply of combustion air. Consequently, during times of peak heating demand there was not sufficient combustion air to burn the quantity of coal needed for adequate heating.

After this condition was discovered, it was, of course, a simple matter to install a combustion air duct extending from a point near the furnace to the outside of the building wall. This completely corrected the trouble.

## New Commercial Standard for Oil Fired Furnaces

THE BUSINESS and Defense Services Administration recently issued a bulletin announcing the establishment of a commercial standard for warm air furnaces equipped with pressure atomizing or rotary-type oil burners. The original work was done by the Commodity Standards Division of the U. S. Department of Commerce. It is announced as a voluntary standard of the industry and is identified as CS195-54.

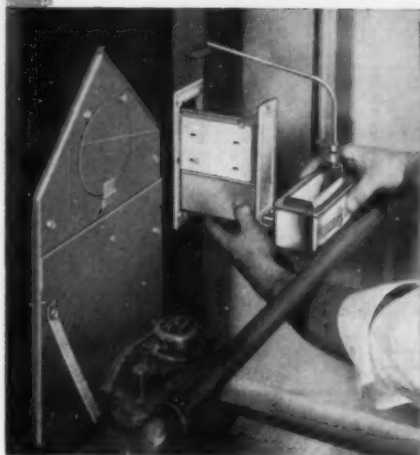
The standard became effective September 1, 1954. Mimeographed copies (identified as TS-5169A) may be obtained by addressing H. A. Bonnet, Commodity Standards Division, Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C.

The standard was requested by the National Warm Air Heating and Air Conditioning Association. The original specification was based on research work at the University of Illinois. It was submitted by the Federal Housing

Administration and has been endorsed by furnace and oil burner manufacturers, distributors, installers, testing laboratories, architects and consumer organizations. It provides a guide, according to the BDSA, for the oil burning furnace industry, and a basis for certification of the quality and performance of the furnaces which it covers.

The standard outlines the tests that a furnace must undergo before it can qualify for a certificate of approval. Tests cover such requirements as effectiveness of filters, noise level of equipment under normal operating conditions, location of access doors to combustion chamber, protection provided for the cabinet finish from exposure to high internal temperatures, use of insulating materials, electrical specifications (including controls and motors), performance of oil burner, temperature limits of heat exchanger, air volume and rated Btu capacity.

# No plenum too small for the CONVECTOR HUMIDIFIER



## FOR COUNTER FLOW WARM AIR FURNACES

Maid-O'-Mist Convector Humidifiers, because of their narrow  $\frac{3}{8}$  inch wide trough design, can be installed in counter flow warm air furnaces having a minimum air passage of 3 inches. As shown above, the humidifier can be installed on either side of the furnace directly above or below the burner — depending on furnace design.



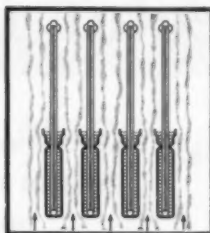
## FOR CONVENTIONAL WARM AIR FURNACES

Installation time can be reduced by 50%. You just cut opening in plenum and make water connections. 13 sizes available with evaporation capacities of 1 to 10 gals. of water per day. Get full information on these competitively priced units from your jobber, or write for Bulletin 701-B.

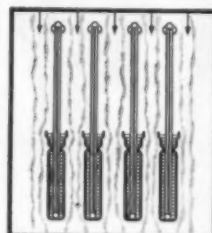
The only standard unit that fits both  
**COUNTER FLOW** and **CONVENTIONAL**  
warm air furnaces

Unlike ordinary warm air furnace humidifiers, this Maid-O'-Mist Convector Humidifier has no flat bottom to block the flow of warm air. Maid-O'-Mist's individual  $\frac{3}{8}$ " copper water troughs are spaced 1" apart to allow unrestricted air flow between the evaporator pads. This exclusive design provides greater evaporating working area so necessary in short cycle modern heating. That's why Maid-O'-Mist Convector Humidifier is ideal for the small plenums of all modern warm air furnaces . . . conventional, counter flow and year around air conditioning units.

Patented Evaporator Pads are constructed of corrugated long grain paper fillers with outer layers of asbestos. The corrugations form capillary tubes which greatly increase the water absorbing qualities of the pads.



Note how Maid-O'-Mist's exclusive individual trough design allows the air to flow freely between the evaporator pads . . . whether in an upward motion for conventional furnaces, or down in counter flow furnaces. The entire area of each of the large evaporator pads is in direct contact with the warm air flow thus providing 30% more evaporation surface.



**60%**

LESS AIR  
RESTRICTION  
IN PLENUM

**30%**

MORE  
EVAPORATION  
AREA

**50%**

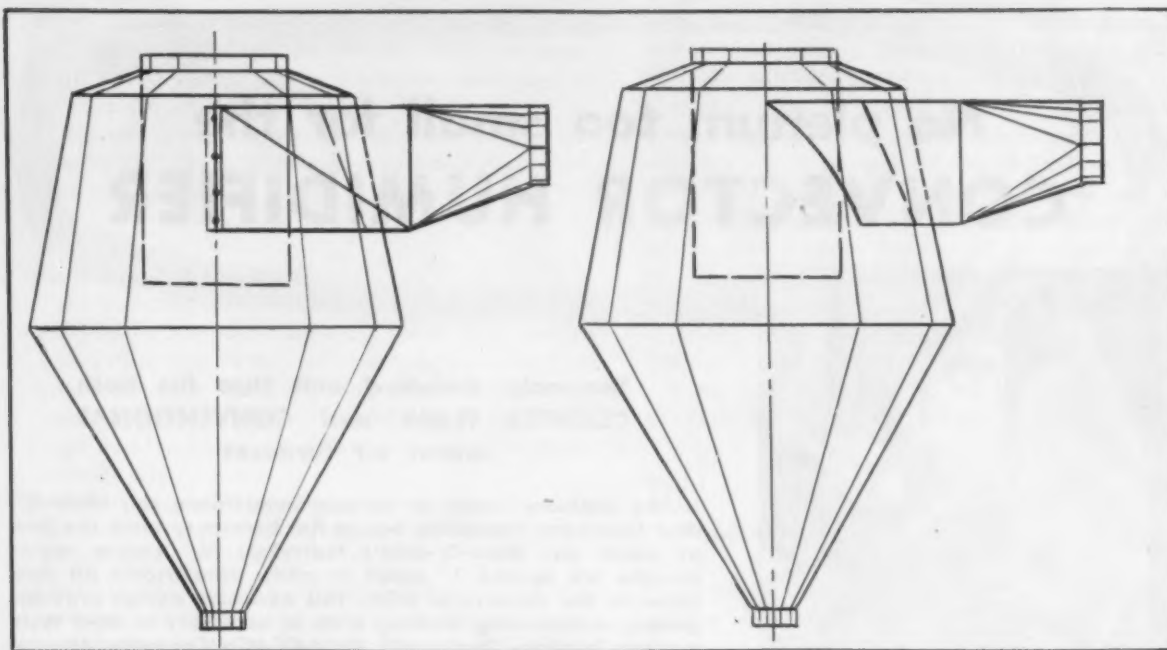
LESS  
INSTALLATION  
TIME



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**WATER LINE CONTROLS . HEATING SPECIALTIES**

**MAID-O'-MIST, Inc.**

**3217 NORTH PULASKI ROAD . CHICAGO 41, ILL.**



1 THE INLET ARM can be designed with one side tangent to the collector (*left*), as described this month, or with only one point tangent (*right*) as was described last month

## HUGH REID'S SHEET METAL PATTERN

Design No. 2 —

### Dust Collector Inlet Arm

... with brake line diagonally on the long side  
so that air and dust can enter tangent to the  
outer shell perimeter of the collector

IN THE AUGUST issue of *American Artisan*, the dust collector arm design shown in Fig. 1, right, was discussed as a pattern development problem. In this design, the top and bottom sides of the inlet arm are parallel, which results in the back and front sides cutting into the taper and producing a long curved intersection line on the front side.

Fig. 1, left, shows a collector arm design with a brake line diagonally on the long side to permit this side to be fitted into the straight seam on the side of the taper, auto-

matically offsetting the bottom side, as shown on Fig. 3. This design will permit the air and dust to enter the collector tangent to the outer shell perimeter, and will add to the efficiency of the collector.

In the fabrication of the collector, it is important that the seam at the intersection of the arm and outer shell be drawn tightly together and the rivet heads be flush on the inside of the arm. This will prevent wear and unnecessary obstruction to the smooth passage of dust laden air going into the collector. All seams on the outside and inside



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water's wonderful!  
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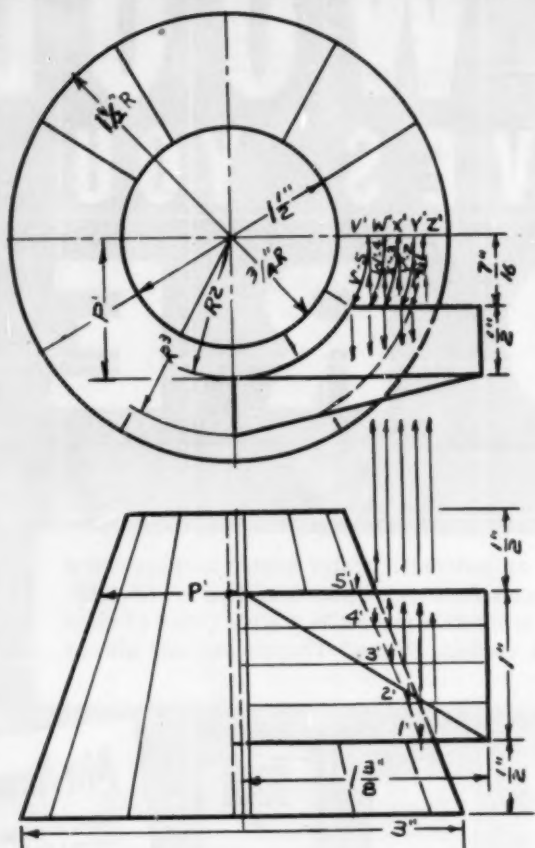


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**Electric**  
**WATER HEATERS**

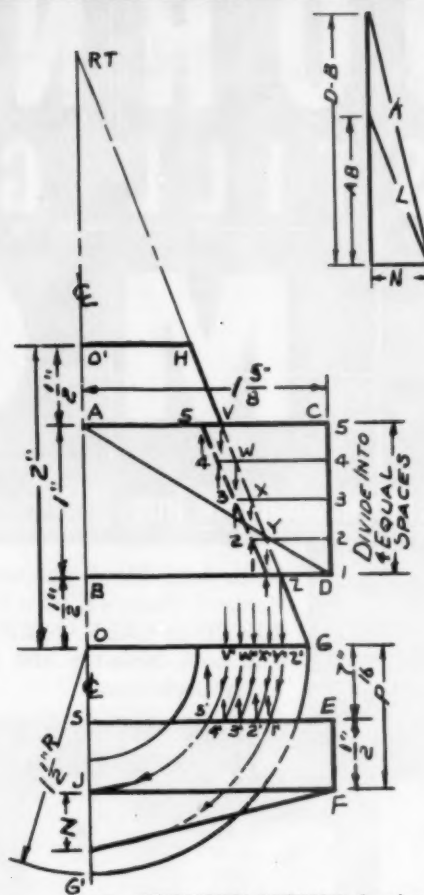
Models include  
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table-top in both  
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**JOHN WOOD COMPANY**

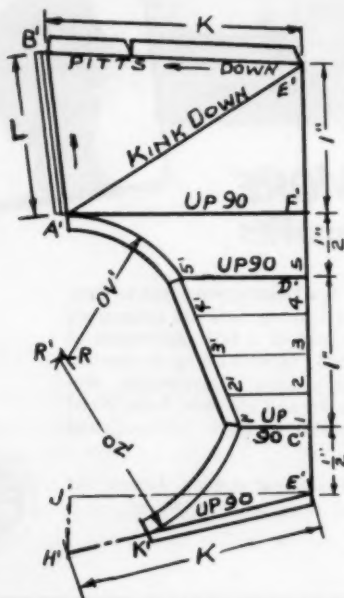
Heater & Tank Division  
Conshohocken, Pa. • Chicago, Ill.



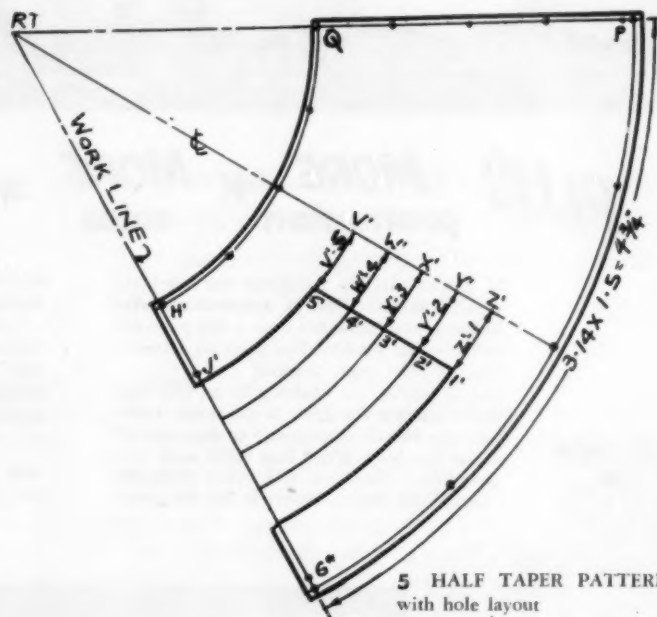
2 PLAN VIEW (top) and front view (bottom) of the inlet arm



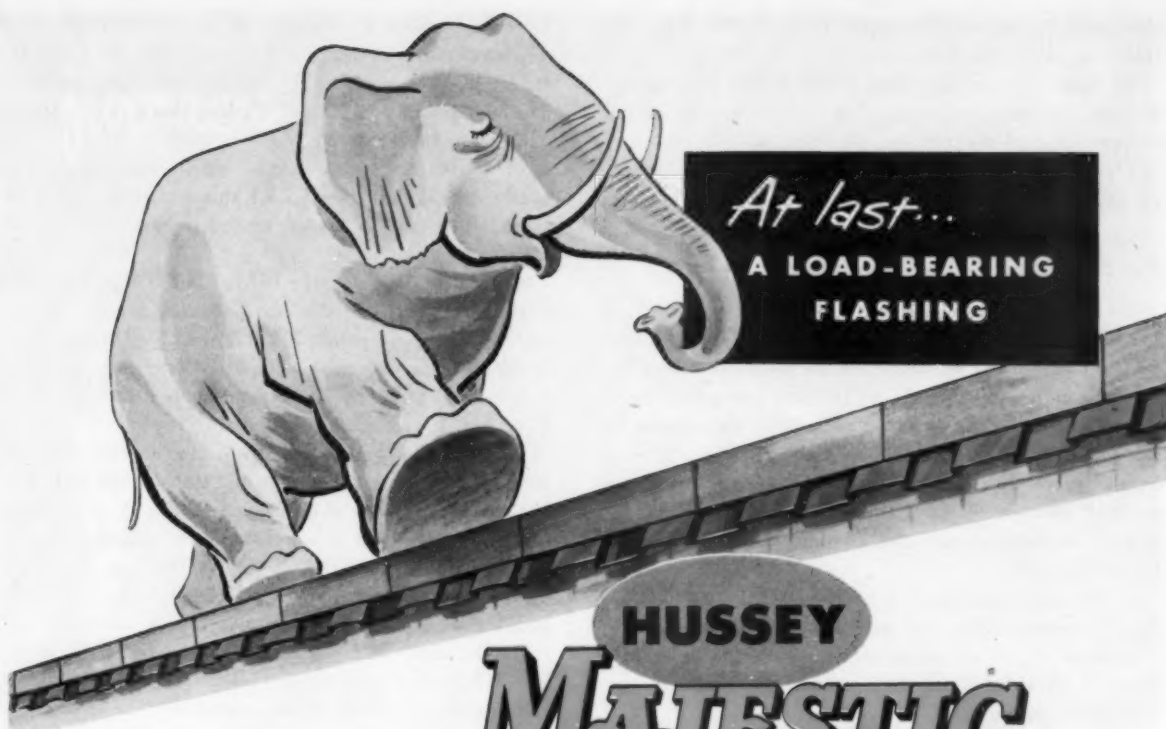
3 SIMPLIFIED METHOD drawing



4 INTERSECTING RECTANGULAR duct pattern



5 HALF TAPER PATTERN with hole layout



*At last...*

**A LOAD-BEARING  
FLASHING**

**HUSSEY**

# MAJESTIC

## 3-Way Thru Wall COPPER FLASHING

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Hussey Majestic Flashing is designed to bear the compression loading of heavy coping and caps and will retain its form and key-bonding action that resists shifting movements laterally, horizontally and vertically—*three ways!*

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shell must be fabricated to lap in the direction of the air travel on the inside of the collector.

All seams, joints and rivet heads should be soldered airtight. In many installations, a damper is used at the bottom outlet of the unit.

The following is a step by step solution of the pattern problem:

#### For Simplified Method Drawing, Fig. 3 —

a) Draw the vertical center line marked CL. On this line establish the point O. From O measure given lengths  $\frac{1}{2}$  in., 1 in. and  $\frac{1}{2}$  in., and mark the points B, A and O'.

b) From points O, B, A and O' draw lines to the right of and perpendicular to center line O-O'. From point O measure  $1\frac{1}{2}$  in. (radius of the large circle, Fig. 2, top) on the perpendicular line and establish point G. From point O' measure  $\frac{3}{4}$  in. (radius of the small circle, Fig. 2, top) on the perpendicular line and establish point H. Draw line G-H.

c) Working from point A, measure a  $1\frac{5}{8}$  in. length on the perpendicular line and establish point C. From point B measure  $1\frac{5}{8}$  in. on the perpendicular line and establish point D. Draw the line C-D, which is parallel to the vertical center line.

d) Divide the line C-D into four equal spaces and mark the division points 1,2,3,4 and 5. Through points 2,3 and 4 draw extended lines perpendicular to line C-D. Mark the points where these lines and lines A-C and B-D cross line H-G with the letters V,W,X,Y and Z.

e) With point O as center and radius  $1\frac{1}{2}$  in., draw a 90 deg arc. Where the arc crosses the center line, establish point G'. From point O and working down on the center line, measure  $\frac{1}{8}$  in., establishing point S. Measure  $\frac{1}{2}$  in. below point S on the center line and establish point J. Draw perpendicular lines to the right of points S and J. From points S and J measure  $1\frac{5}{8}$  in. along these perpendicular lines, establishing points E and F. Draw the line E-F.

f) From points V, W, X, Y and Z, project lines down and parallel to the center line to intersect line O-G. Mark the intersection points V', W', X', Y' and Z'. (The points are repeated on Fig. 2, top, for clarity.) With point O as center and radii O-V', O-W', O-X', O-Y' and O-Z', draw arcs cutting line E-S at 1', 2', 3', 4' and 5'. From the intersection points 1', 2', 3', 4' and 5', project vertical lines upward to intersect the horizontal lines drawn through and extending from the equally spaced points 1, 2, 3, 4 and 5. Through the developed points draw the vertical projection of the line 1-5. The line A-B is tangent to the side of the cone. From point D draw a line to point A, representing the brake line.

#### For Intersecting Duct Pattern, Fig. 4 —

a) Draw a vertical line and establish the point E'. From point E' measure 3 in. along the line and establish a second point E', forming line E'-E'. On line E'-E' and

from lower point E', measure  $\frac{1}{2}$  in. and establish point C'; from point C' measure 1 in. and establish point D'; from point D' measure  $\frac{1}{2}$  in. and establish point F'. Through points C', D' and F' draw lines to the left of and perpendicular to line E'-E'.

b) Divide the 1 in. section C'-D' into four equal spaces. Mark the points 1,2,3,4 and 5, and through these points draw lines to the left of and perpendicular to line E'-E'.

c) Transfer line lengths CD-1, CD-2, CD-3, CD-4 and CD-5 from Fig. 3 to the corresponding lines on Fig. 4 and mark the end points 1',2',3',4' and 5'. Through these developed points draw the line 1'-5'. Transfer line length C-A from Fig. 3 to the corresponding line extending from F' on Fig. 4, and mark the point A'.

d) Draw the brake line A'-F'. To develop the true length line, draw a right angle and transfer line D-B, Fig. 3, to the vertical leg and distance N, Fig. 3, to the horizontal leg. (Distance N is developed by extending the arc formed from radius O-Y' from line O-G to line O-G', using O as center.) The hypotenuse line K is the true length line. With upper point E', Fig. 4, as center and radius K, draw an arc to the left of line E'-E'. Transfer line A-B from Fig. 3 to the vertical leg of a right angle and rise distance N to the horizontal leg. The hypotenuse line L is the developed line. With point A', Fig. 4, as a center and radius L, cut the arc K and mark the point B'. Draw lines E'-B' and A'-B'.

e) From lower point E' draw the work line E'-J' perpendicular to line E'-E' and equal in length to line D-B, Fig. 3. Measure line K on the right angle and with this as radius and lower point E', Fig. 4, as center, draw an arc. With rise distance N, Fig. 3, as radius and point J', Fig. 4, as center, cut the arc K and mark the point H'. Draw line E'-H'. Measure distance Z-V, Fig. 3, along line E'-H', and establish point K'.

f) Measure arc radius O-Z', Fig. 3, and with points H' and 1', Fig. 4, as centers, draw intersecting arcs and mark the point R'. With R' as center and radius O-Z' draw an arc to intersect points K' and 1'.

g) With radius O-V', Fig. 3, and points A' and 5', Fig. 4, as centers, draw intersecting arcs and mark the point R. With R as center and radius O-V', draw an arc to intersect points A' and 5'. (For clarity, radii O-V' and O-Z' are repeated on Fig. 2, top, and marked R<sup>2</sup> and R<sup>3</sup>.)

#### For Tapered Pattern, Fig. 5 —

a) On Fig. 3 find the radius point of the taper by extending line G-H to intersect the center line at point RT.

b) Establish a work line for Fig. 5 and on this line establish the point RT. On Fig. 3 measure length RT-G. With this length as radius and point RT, Fig. 5, as center, draw a long arc. Mark the intersection point of the arc and the line as G''.

c) Calculate the half circumference of the large end of the taper by multiplying the given  $1\frac{1}{2}$  in. radius (Fig. 2, top) by the constant 3.14. Thus,  $3.14 \times 1.5 = 4\frac{3}{4}$  in.



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From point G" as working point and using a flexible rule, measure  $4\frac{3}{4}$  in. around the arc and mark the point P. Draw a line connecting points P and RT.

d) With a compass, measure length RT-H, Fig. 3, and with this length as radius and point RT, Fig. 5, as center, draw an arc to intersect line RT-G", marking the point of intersection H'. Extend the arc to intersect line RT-P and mark the point of intersection Q.

e) Bisect the arc G"-P and through the intersection draw a line to apex point RT. Mark the line CL.

#### For True Shape of Cutout Section —

a) On Fig. 3 measure the radii RT-V, RT-W, RT-X, RT-Y and RT-Z. With these radii and point RT, Fig. 5, as center, draw arcs to intersect line G"-H' and line CL.

b) Working from line O-G, Fig. 3, measure the arc lengths from this line to points 1', 2', 3', 4' and 5', on

the rectangular duct line E-S and transfer these lengths to the corresponding arcs on Fig. 5. Mark the points 1', 2', 3', 4' and 5'.

c) Line A-B on Fig. 3 is on the center line O-O', Fig. 3. Therefore, it is a straight line on the corresponding line on the tapered pattern layout, which is line H'-G".

d) Through the developed points draw the outline of the cutout section on the taper.

#### For Large and Small Collar Patterns —

a) Multiply the large diameter by the constant 3.14. Thus,  $3.14 \times 3$  in. =  $9\frac{7}{16}$  in. Draw a rectangle  $9\frac{7}{16}$  in. by  $\frac{1}{4}$  in.

b) The small collar pattern will equal  $3.14 \times 1.5$ , which is  $4\frac{3}{4}$  in. Draw a rectangle  $4\frac{3}{4}$  in. by  $\frac{1}{4}$  in.

Add allowances for seams and joints. Lay out the necessary holes and mark the patterns for fabrication.

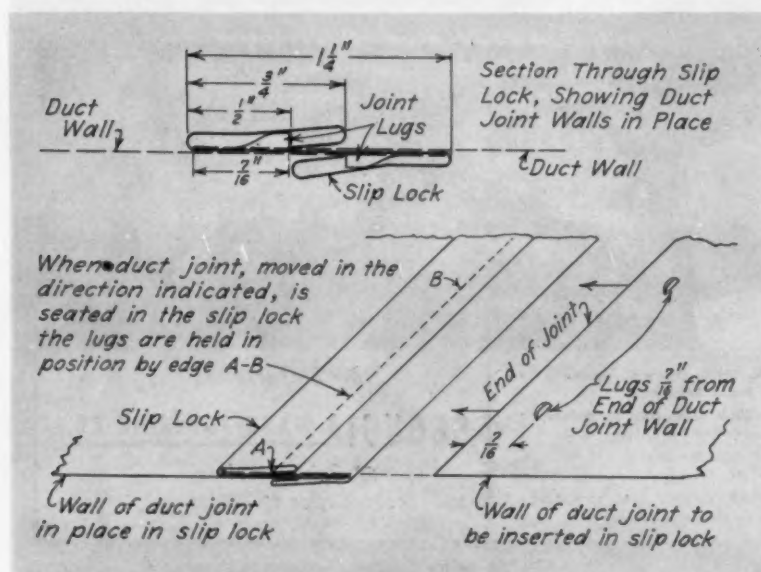
## Philadelphia Fights Air Pollution

A NEW AIR POLLUTION control ordinance, developed by the city of Philadelphia in cooperation with civic and industrial groups, became effective recently. The new ordinance — stronger than its predecessor — gives specific definitions of the terms "air pollution" and "air pollution nuisance" and makes provisions for the problem of controlling odors. It prescribes fees for permits, calls for an increase in penalties for violators and gives the city's Department of Health and the Air Pollution Control Board strong enforcement and administrative powers. Under the new ordinance, the Department

of Health's Air Pollution Control Division will administer and regulate, while the Air Pollution Control Board will serve in an advisory capacity. S. Charles Rothmann, director of the division, says the new program emphasis will be directed toward prevention of violations rather than the processing of complaints. The program will emphasize:

- 1) Elimination of open burner when incinerators are completed.
- 2) Increased requirements for industrial cleanups.
- 3) An automatic enforcement policy.

## Making A Slip Lock Duct Fastener



A SLIP LOCK duct fastener used by the Ferrara Heating Co. of Youngstown, Ohio, for assembling rectangular duct sections and fittings has helped make the work of installing residential air distribution systems much easier than when the drive cleat is used, according to Dan Ferrara, who has developed the technique of preparing the duct section ends and forming the double slip lock shown in the accompanying sketch.

The forming of the locking lugs for the duct ends is accomplished with a hand operated offset punch. The raised end of the lug is  $\frac{7}{16}$  in. from the duct end and the lugs are spaced about 6 in. apart. This type of joint has proven successful on ducts as wide as 3 ft.



## SPIRES: Copper solves the costly maintenance problem

One of the many applications where the long run economy of copper has proved itself is in the covering of spires. Whether it is repointing a spire of masonry construction or repainting one of wood exterior surface, the operation is a costly one. Copper sheets, properly applied, provide a lasting,

weathertight covering that becomes an elegant landmark in the community—but of more importance is the freedom from expensive maintenance.

The copper-covered spire shown above is built in much the same way as a batten-seam roof. Details for edgings, etc., are simple, and copper covering

is built into the wood construction of the ventilating dormers at the base. Several alternate types of battens or methods of joining at the corners are also shown. For small spires, 16 oz. copper of cornice temper does very well. For large spires, 20 oz. copper is preferred.

8454



**Do you have the FREE Anaconda file of drawings?** Each drawing shows a new or improved way to apply sheet copper. Each is printed on a separate 8½ x 11 page, handy for quick-reference filing. This series may be obtained absolutely FREE by writing for Portfolio S to **The American Brass Company, Waterbury 20, Conn.** In Canada: **Anaconda American Brass Ltd., New Toronto, Ont.**

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APPLYING FLUX carefully, with a small brush, assures that the liquid will be kept within the soldering area

# How to Solder Stainless Steel

By E. M. Rains  
Armco Steel Corp.

**If you want a properly soldered joint that will remain stain free and uncorroded, follow these few simple rules on preparing the surface, applying the fluxes and washing the joint**

THE FIRST thing to remember about soldering stainless steels is that soldering is not a substitute for welding if strength is needed. While it is true that soft soldering will produce tightly sealed joints, the joints can be no stronger than the solder itself. In tensile strength you can expect no more than 7000 psi. Compare this with stainless steels which possess tensile strengths of 85,000 psi or higher.

So, where stronger joints are needed, edges must be lock seamed, spot welded or riveted and soldered to seal. Welding, of course, provides the ultimate in joint strength.

## Clean and Roughen the Surface

Surface preparation is your first important step in soldering. You should clean the surface thoroughly and roughen it to assure firm adhesion. Pickled finish sheets are no problem because they already have a rough enough surface and need only be cleaned before fluxing. You should roughen cold rolled finish sheets or polished sheets, such as No. 4 or higher, with emery cloth or an abrasive wheel before soldering.





## Curtain going up ...with a front-row seat for you!

The fan-fare's starting! Right now—just as millions of Americans are turning on their forced warm air furnaces—we're setting off another big selling campaign on Dust-Stop Air Filters.

*Big full-color ads in leading consumer magazines plus Dave Garroway on the NBC-TV show "TODAY," tell your customers how to save fuel . . . and get more heat . . . by replacing dirt-clogged furnace filters now . . . with new Fiberglas® Dust-Stop® Filters!*

### And that's just the beginning!

To make sure you get *your* share of this business, we've prepared a whole collection of money-making sales helps to keep your cash register ringing. They include:

"Jiminy Filter" window and counter displays (the world's greatest filter salesman) . . . Window banners . . . Sales letters . . . Envelope stuffers . . . Radio and TV commercials . . . Newspaper ad mats . . . Reminder service plan . . . and others.

### This big promotion

is breaking *right now*. So today, check your stock; put up your Jiminy Filter display; and put the free sales helps to work making extra profits for you! If you aren't a Fiberglas dealer, call the nearest Fiberglas Dust-Stop Filter distributor *at once* and get in on this bonanza.

### But act fast

... *before somebody else beats you to the*

*punch in this profitable filter market. Remember . . . the curtain's going up right now!*

Owens-Corning Fiberglas Corporation,  
Dept. 35-1, Toledo 1, Ohio.



\*Fiberglas and Dust-Stop are trade-marks (Reg. U.S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with fibers of glass.



TEMPERATURE SHOULD BE only high enough to melt and flow the solder in work on such equipment as this stainless steel container



FLUX ACIDS AND SALTS should be removed right after soldering. The simplest method is to use a scrub brush and clear water, or laundry soap can be used with water in which washing soda has been dissolved

You can make bright, smooth, solid joints with a 70 per cent tin-30 per cent lead solder. Corrosion resistance is good, while the lower melting point of 70-30 is less discoloring to surrounding surfaces. It is not considered good practice to use solders with less than 50 per cent tin content because of lower fluidity and the invariable darkening that results when the work is exposed to the atmosphere.

For non-tarnishing joints which comply with pure food law requirements, a 96 per cent tin-4 per cent silver solder is commercially available.

EDGES OF STEAM TABLE section are roughened with emery paper before soldering is performed to fill the crack



### The Care and Working of Stainless Steel

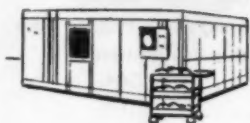
So far in this series we've had tips on

- ▶ cutting and forming (July)
- ▶ soldering (this month)

Still to come:

- ▶ grinding bead welds and surface finishing
- ▶ welding
- ▶ cleaning
- ▶ maintenance

# *Curtis* Refrigeration and Air Conditioning Gives You More Jobs to Sell...



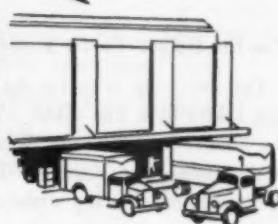
Processing



Locker Installations

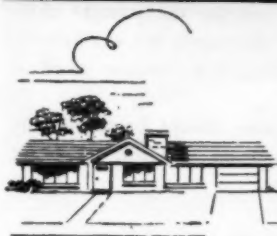


Cold Storage Rooms

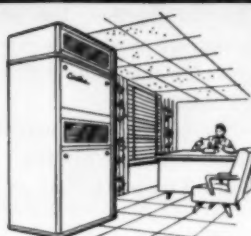


Food Warehouses

## ALL KINDS OF REFRIGERATING JOBS



Homes



Offices



Businesses

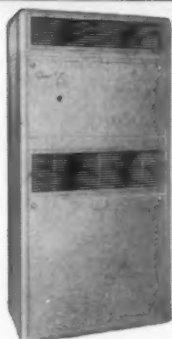


Large Buildings

## AIR CONDITIONING JOBS—BIG AND SMALL



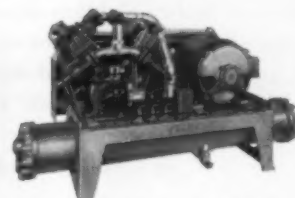
Room Air Conditioners



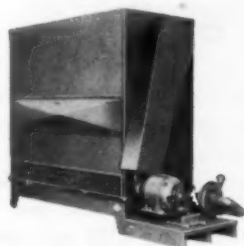
Packaged Air Conditioners  
2 to 10 tons



Combination Heating-Cooling Units



Condensing Units up to 80 Tons



Evaporative Condensers,  
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When you handle the Curtis Line, you're ready for practically any profitable job in the field of air conditioning and refrigeration. You're ready to satisfy customers with the industry's top quality equipment line. You're ready to take advantage of Curtis' national advertising in *Saturday Evening Post*, *Time*, *Newsweek* and other well-read publications.

It makes profit sense to sell Curtis. To learn if you qualify for a direct factory franchise, write on your company letterhead.

***Curtis* REFRIGERATING MACHINE DIVISION**  
of Curtis Manufacturing Company  
1982 Kienlen Avenue, St. Louis 20, Missouri

1854 **100** 1954  
years  
OF SUCCESSFUL MANUFACTURING EXPERIENCE

## Use Special Fluxes

Fluxes used on carbon steels will not do for stainless steels. It takes a stronger flux to penetrate the oxide film on stainless and etch the underlying metal. Commercial fluxes are available for this purpose, or you can use 10-20 per cent orthophosphoric acid. Apply flux carefully with a small brush so that it won't spread beyond the soldering area.

## Tin the Edges To Be Joined

The next step is to tin the edges to be joined with a thin solder film. The solder will then flow better and give the penetration you want. Where many parts are in work at the same time, tinning will keep the edges clean and prepared for soldering when ready.

## Get Proper Temperature Slowly

One characteristic of stainless steel is that it conducts heat slowly. This means that it takes longer to heat the joint to proper soldering temperature than is the case with other steels, and copper and brass parts. But stepped-up temperatures should not be substituted for longer application of heat. Use a large soldering iron and quickly flow the solder into the joint. Temperature should be only high enough to melt and flow the solder.

## Wash Joint after Soldering

The necessity for thorough washing of the joint after soldering cannot be too strongly emphasized. Some contractors have had the unhappy experience of seeing their otherwise skillful work discolor or corrode around the joints, simply because they did not observe this precaution. It need not happen. Wash, and if desired, scrub-brush the joint with ammonia water or with laundry soap and water in which washing soda has been dissolved. If

you do this, be sure to follow with a thorough fresh water rinse. That's all it takes, but it will spare you trouble and complaints.

Follow the same procedures for sweat soldering.

## For Silver Brazing, Select Alloy Carefully

For jobs that require silver brazing (low-temperature brazing), use an alloy that has a melting point of about 1200 F. This will reduce the chances of overheating the stainless steel and provide the best color match.

One of the well known commercial silver brazing alloys for use with 18-8 stainless has this composition:

Silver .....	50%
Cadmium .....	16%
Zinc .....	16.5%
Copper .....	15.5%
Nickel .....	3%

The manufacturer of the brazing alloy you select can provide the most suitable flux for his product; so order the two together. For silver brazing the straight chromium stainless steels — 17 chromium for example — consult your stainless distributor or a producer of silver brazing alloys.

As in soft soldering, the joint should be thoroughly cleaned before brazing. Any good chemical degreaser will rid the work of oil or grease.

## Can Use Neutral Flame Method

One method which may be used is to apply the flux paste to the parts to be brazed and fit the silver brazing alloy wire or strip over the fluxed joint. Adjust the oxy-acetylene torch for a neutral flame and bring to brazing temperature evenly by playing the flame back and forth over the surface.

Flux should be removed immediately after the joint has been made. This is best done with a steam jet or, if that is not available, use a hose and plenty of hot water.

# Cites Benefits of Incentive Programs

SPEAKING recently on the subject of employee incentive programs, Russell J. Van Dame, controller, The Lincoln Electric Co., pointed to the tremendous amount of latent ability existing in every individual, and suggested ways in which this force might be utilized to work for the common benefit of the employee, the company and the general public. By increasing his efficiency, Mr. Van Dame said, the employee helps to reduce operating costs, which savings are in turn passed along to the customer.

Among the incentives offered by his company to increase employee productivity, Mr. Van Dame listed such tangibles as an annual bonus, recognition of achievement (individuals who have done an outstanding job are presented with a special citation from the president),

and the opportunity to purchase stock in the company. That the program has been highly successful — from the point of view of both labor and management — is, he said, evidenced by the fact that the company's earning powers have increased to the extent that last year's annual bonus — distributed among 1228 employees — exceeded \$5 million. Consumer benefit, he concluded, is reflected in the lower prices paid today for the company's products — prices which in some cases have decreased as much as 34 per cent in the last 20 years.

The Lincoln Electric Co. is a member of the Council of Profit Sharing Industries, a non-profit organization, whose membership includes warm air heating and sheet metal dealers from many parts of the country.





## CENTRAL HEATING UNITS

### gas fired Conversion burners



Your customers will like the economy and efficiency of a JZ Gas Conversion Burner that eliminates coal storage and handling.

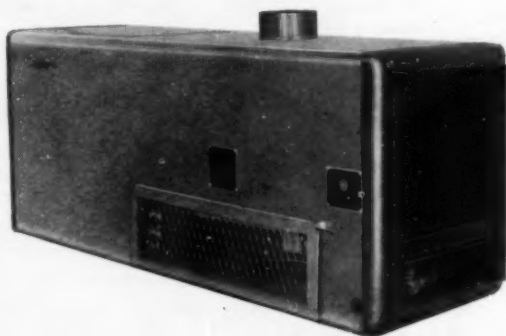
JZ Gas Fired Conversion Burner is fully automatic with a choice of electric or gas-actuated controls.

*Installation* — it is easy to make a workman like job — just bricks in ash pit opening of furnace — and it will fit 98% of the domestic heating plants. Gas Control Valves, pilot and piping are all shipped in a complete package assembly.

One Model #CB-200, on natural gas has input rating of 75,000 to 200,000 Btu. Pipe size  $\frac{3}{4}$ ". A.G.A. approved.

### Central gas heaters VERTICAL OR HORIZONTAL

Central Heating Units that are universally adaptable; a complete package unit ready for installation. Vertical and Horizontal models of equal efficiency permit installation in basement, attic, service closet or utility room in old or new homes.



The Horizontal model can even be installed under the house, or for industrial heating can be installed on shelf or balcony; used as a suspended heater or as a duct heater.

Capacities from 65,000 Btu/hr input on natural, mixed or L.P. gas. A.G.A. approved.



*Write for illustrated literature and prices.*

# JOHN ZINK COMPANY

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# It's Good Business to Incorporate

**In partnerships or individual ownerships, claims can be made against personal estates and business assets in case of death or bankruptcy, but incorporating a firm prevents such action**

THE MAN who is a residential air conditioning and warm air heating dealer knows that some day his business must pass to others. Such a transfer often brings on the misunderstandings and conflicts of opposing interests common to the settlement of estates. These difficulties, added to the disadvantage of a shift in control to less experienced successors, may mean less attention to business and less money, taking a toll from the good will built up through years of planning.

Under such circumstances, too, the claims of creditors against an estate are chargeable against the business and the claims against a business chargeable against the estate.

### Partnership Also Liable

When a business is owned by a partnership, with the death of a partner the partnership is thereby dissolved, as was the individually owned business with the owner's death. Of course, the surviving partner or partners are better acquainted than strangers with the methods and manner in which the business has been operated.

It should be pointed out that the partnership is liable to the extent of the share of a deceased partner for the payment of any creditors of the individual, even as the estate of the partner is liable for the debts of the partnership.

In one lawsuit in a southern state involving the claims of creditors against one of the partners who had become individually insolvent, the court said that as a general rule the death, bankruptcy or the general assignment of a partner for the benefit of creditors effects a dissolution of the partnership.

### Avoid Difficulties by Incorporating

An escape from the difficulties and expense that attend the transfer of a business made necessary by occasions



STOCKHOLDERS DIRECTING and owning a corporation are not personally liable for debts incurred by the business, nor can their personal debts be charged to it. This is true even if one person owns all the stock

such as these lies in the substitution of a corporation for ownership by an individual or partnership.

"A corporation is distinct entity," at one time asserted the United States Supreme Court. "Its affairs are necessarily managed by its officers and agents, it is true, but in law, it is as distinct a being as an individual is and is entitled to hold property as absolutely as an individual can hold it. Its estate is the same, its interest is the same and its position is the same."

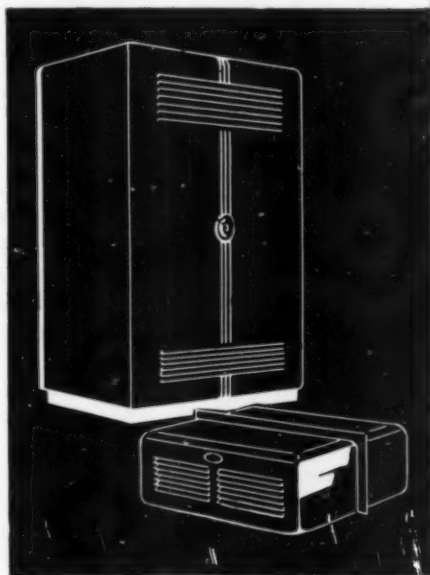
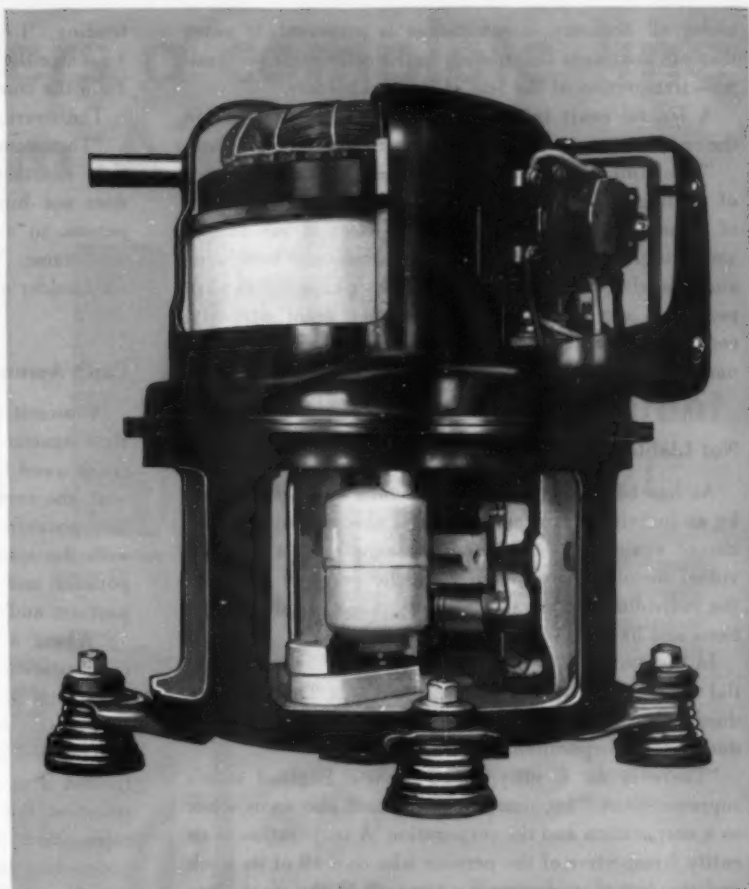
### Corporation Perpetual

Not only is a corporation a separate thing which is owned by the stockholders but it has an existence that

Albert W. Gray, author of this article, has had over 20 years' experience as an attorney in the courts of New York City. He has written widely on legal matters and is the author of *The Family Legal Adviser*.

# COPELAND WELDED HERMETICS

bring  
cool-running,  
2-cylinder  
smoothness  
to  
package  
air conditioning



You're looking at a cutaway view of the welded motor-compressor that can give your refrigeration and air conditioning products the competitive edge you need.

This potent Copeland package is engineering at its best. Twin cylinders bring whisper-quiet smoothness. Heavy-duty, high power factor motor insures positive performance and long-range economy. Use of F-12 in these motor-compressors can result in as much as 75 F. lower temperatures in windings, crankcase, oil and discharge side. You'll appreciate their high capacities.

We could go on, point by point, and prove construction superiority. Better yet, we want you to test the Copeland welded motor-compressor in your own equipment under your own conditions.

Write, wire or phone for details about the "try it yourself" test.



REFRIGERATION UNITS (OPEN TYPE AND COPELAMETIC) WATER COOLERS

**Copeland**  
DEPENDABLE *Electric* REFRIGERATION



COPELAND REFRIGERATION CORPORATION SIDNEY, OHIO

under all ordinary circumstances is perpetual. It never dies but continues functioning in the conduct of the business irrespective of the fate of its stockholders.

A federal court in California some years ago said in the characterization of a corporation:

"The ordinary incidents to a corporation are the power of electing or otherwise providing members in the place of those removed by death or otherwise; to sue and be sued; to grant and receive and to purchase and hold lands and chattels by their corporate name; a capacity to have perpetual succession and to take and grant property, contract obligations and sue and be sued by its corporate name."

### Not Liable for Stockholders' Debts

As has been pointed out, a business conducted either by an individual or a partnership is always subject to the charge against its assets of the claims against an individual member personally, while the personal assets of the individual members are equally subject to the obligations and liabilities of the partnership.

In that particular and in what it implies lies the essential difference between the situation of a business conducted by an individual or a partnership and one conducted by a corporation.

"There is no identity," said a New England state's supreme court, "between the individual who owns stock in a corporation and the corporation. A corporation is an entity irrespective of the persons who own all of its stock and the fact that one person owns all of the stock does not make him and the corporation one and the same person."

In a case before another state's supreme court, in which stockholders sought to set aside a lease of the corporation, that court made this further comment:

"All demands against a corporation must be prosecuted against the company by name. A stockholder in his character as stockholder cannot sue nor can he be sued for any of the company's transactions."

### Sole Stockholder Is Not Corporation

A sheet metal contracting warm air heating business owned and conducted by one individual may be conducted in the same manner by a corporation, with the added features that the debts of the corporation are not the debts of the individual owner, the property of the corporation is not liable for the payment of the debts of the individual owner, and the transfer of the business (by sale, by gift or by a will) is made by a transfer of the stock.

The distinction between the business owned by one individual and the business owned by a corporation, in which the stock was owned by only one stockholder, was a feature in a midwestern lawsuit. This stockholder had attempted to sue in his own name for the recovery of the possession of property owned by the corporation, con-

tending, "I bought all the stock. I own all the stock now. I became the absolute owner of the property involved and I am the company."

The court, in refusing to adopt this conclusion, said:

"The owner of all of the capital stock of a corporation does not therefore own its property, or any of it, and does not himself become the corporation, as a natural person, to own its property and do its business in his own name. While the corporation exists he is a mere stockholder of it and nothing else."

### Can't Assume Corporation, Sue as Partnership

A lawsuit was brought in a federal court in a southern state against stockholders to recover payment of an account owed by the corporation which had become insolvent, the creditor of the corporation contending that the incorporators had failed to comply in some particular with the statute governing the organization of the corporation and that as a consequence the stockholders were partners and individually liable for this debt.

"Where a person deals with what he supposes is a corporation," said the federal court, "with what all the parties think is a corporation, where he gives his credit to that supposed corporation, he cannot afterwards turn around and say, 'While I dealt with this corporation, I trusted it as a corporation; I sold goods to it as a corporation, but it seems that when it first attempted to become incorporated there was some irregularity in its proceedings so that it was not legally incorporated, and therefore, you who are stockholders will be personally liable.' I do not think that can be done," the court concluded, absolving the stockholders of any liability.

### Immunity at Low Cost

The expense of incorporating either the business of an individual or a partnership is relatively small weighed against the advantages of maintaining the continuity of a business that will endure in spite of any misfortunes that may occur to its members and at the same time render both the corporation and the stockholders immune to any claims that may arise against each other.

An appellate court in an eastern state many years ago said of an attempt to hold a stockholder personally liable for the debts of the corporation:

"His contract with the state was for immunity from personal liability. His contract was that of an incorporator with immunity from personal responsibility. Even if the charter of the company had been silent he would not have been liable for the debts of the company. Its debts were not his debts. Whenever a corporation makes a contract it is the contract of a legal entity, of the artificial being created by the charter and not the contract of the individual members."

[Note: While this discussion applies to actual cases, it should be remembered that legal rules vary in different states.]



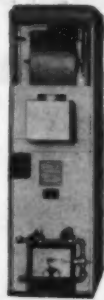
# CRANE offers a complete line of Warm Air Heating



Basement Furnaces—  
Gas or Oil



Hi-Boy Furnaces—  
Gas or Oil



Counterflow Furnaces—  
Gas or Oil



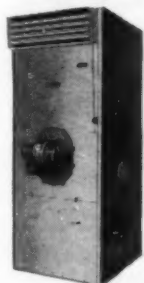
Gravity Furnaces—  
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Steel Gravity  
Furnaces



Year-Round  
Air Conditioners



Industrial Furnaces—  
Oil



Horizontal Furnaces—  
Gas or Oil



Gas Conversion  
Burners



Oil  
Conversion  
Burners



Gas Unit  
Heater



Room Air  
Conditioners



Warm Air  
Baseboard



Floor Diffuser  
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Controls

**NOW! Everything  
from one convenient  
source of supply!**

Crane offers oil- or gas-fired basement furnaces, hi-boys, counterflows, gravity furnaces, industrial furnaces, horizontal furnaces, conversion burners... unit heaters... controls... duct and fittings, registers and grills, warm air baseboard... year-round air conditioners, summer air conditioners, room air conditioners... everything for warm air heating!

When it comes to Warm Air Heating, more and more alert dealers are concentrating on Crane equipment.

It simplifies their work. They find it easier and less expensive to order everything from one source, and the Crane line is complete in every detail, offering units for every heating need.

From your customers point of view, they will be pleased with the prompt delivery, and pleased with the equipment you supply them... for whatever you get from Crane is outstanding for engineering, design, and built-in quality.

You can see why it is—when you count on Crane—you can count on better business, too!

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## CRANE CO.

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VALVES... FITTINGS... PIPE... PLUMBING AND HEATING

# Chase®

**gives you 7 reasons  
why copper means  
a better home!**



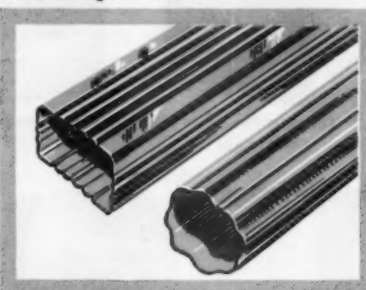
**It won't rust and resists corrosion—**Copper's resistance to the elements is traditional—even in areas where atmospheric conditions destroy other metals. Its performance is proved over centuries of experience.



**It's full weight—**Look for the die-stamped Chase Trade Mark and Weight Stamp—your assurance that Chase Copper Roofing Products have stability and permanence.



**Seams are adequate—**Chase Copper Leaders are formed from full-width strips, to assure strong, expansion-proof seams.



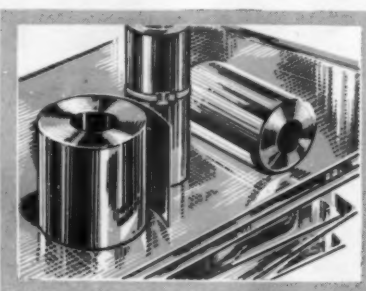
**Corrugations are deep and generous—**Chase Copper Downspouts have full-depth corrugations, ample for temperature ranges in *any* climate.



**It can be soldered . . . with ease and economy—**Long-lasting, water-tight joints are assured when standard soldering techniques are applied to Chase Copper Roofing Products.



**It's architecturally harmonious—**Modern or traditional design both benefit from Copper's rich appearance—a metal protected and beautified by nature itself.



**It's economical—**The ratio of first-cost to years of service is at a bare minimum, when Copper is used. And, the relationship of copper to overall building costs is as reasonable as it ever was in the past.

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Baltimore	Cleveland	Houston	Milwaukee	New York	Rochester†	Waterbury
Boston	Dallas	Indianapolis	Minneapolis	Philadelphia	St. Louis	(sales office only)

# Propose New Code For Furnaces, Unit Heaters

**How many thermocouples should be used to adequately  
test heavy duty warm air furnaces and unit heaters?**

**A new ASHVE-proposed code attempts to  
answer this and many other rating and testing questions**

HEAVY DUTY FURNACES and direct fired unit heaters can be tested and rated by a proposed new code which has been issued by the American Society of Heating and Ventilating Engineers. The code was published in the society's Journal Section of the July *Heating, Piping & Air Conditioning*, and all comments and suggestions received by the end of September at 62 Worth St., New York 13 (ASHVE headquarters) will be considered by the committee which will revise the code for adoption.

It is expected that manufacturers of heavy duty furnaces and direct fired unit heaters will take the opportunity to test their large heaters by the method given in the code in order to determine whether the proposed code is suitable for general use.

## **Scope, Basis for Rating Defined**

The code begins with a statement of purpose and scope; the code applies to forced warm air furnaces and to direct fired unit heaters having output ratings in excess of 250,000 Btu per hr. This section is followed by definitions of the various parts of the heaters and of the various terms used with reference to the heat input and output or rating of the units.

A section on rating limits specifies that the rating may be established at any value which is equal to, or less than, the gross output obtained under certain limiting conditions. These are shown in the box on page 116.

## **How Much Space Needed?**

The unit may be tested in any available space provided there is room to connect to the furnace outlet an

elbow and a horizontal duct having a length of four elbow diameters between the outlet of the furnace and the point of measurement of the outlet air temperature. The code specifies that the unit tested shall be either the identical unit to which the rating is to apply or a representative sample which is a true duplicate of furnaces or unit heaters regularly produced by the manufacturer.

Oil or gas fuel is specified for test purposes. Rating is limited to that obtainable with oil fuel.

## **Placing Thermocouples**

In a process of testing, according to the code, some of the more important measurements should be made as follows:

The heat exchanger surface temperature should be measured by means of at least 10 thermocouples fastened to the surface about 1 ft apart by means of welding, brazing, or peening.

The casing surface temperature should be measured by means of a contact thermocouple which may be used to determine the high temperature spots on the casing.

The flue gas temperature should be measured by means of a thermocouple grid placed in the flue pipe within 1 ft of the flue outlet collar. The grid should consist of at least six thermocouples in a plane normal to the gas flow, and spaced on a circle concentric to the flue pipe and having a radius two thirds that of the flue pipe. There should be no openings in the flue pipe between the furnace and the point of temperature measurement.

Inlet and outlet air temperatures are to be measured by means of thermocouples, one or more being used in the air inlet and one thermocouple being used in each 36 sq in. segment of the outlet duct area. More than 40 segments are not required, but all segments should be equal rectangular areas.

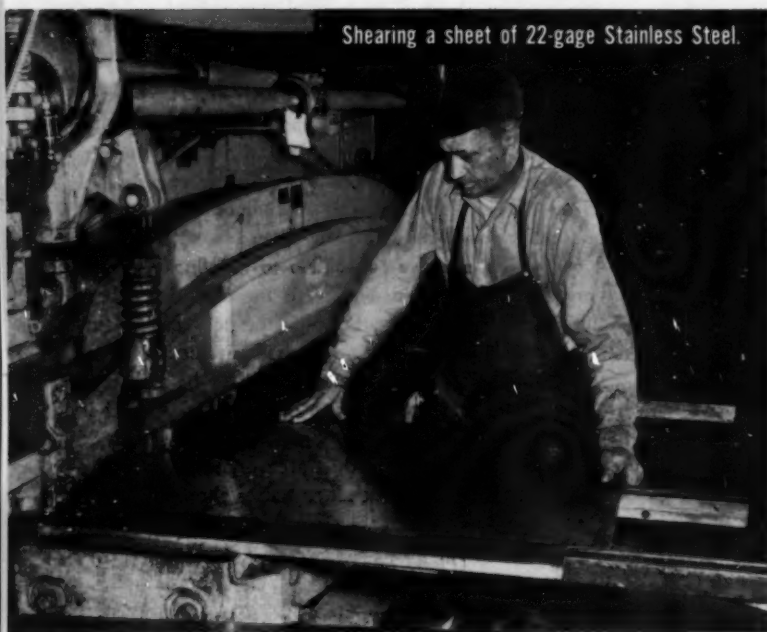
(Please turn to page 116)

E. K. Campbell is chairman of ASHVE's committee for testing heavy duty furnaces and direct fired unit heaters. Other members of the committee which prepared the code are Bowen Campbell, R. S. Dill, A. P. Loeb, C. J. Low, W. J. McGirl, B. F. McLouth, F. L. Meyer, L. G. Miller, A. A. Olson, H. A. Pietsch, O. J. Ress, and H. A. Soper.

# How United fabricates



Overall view of United's shop, showing units after assembly.



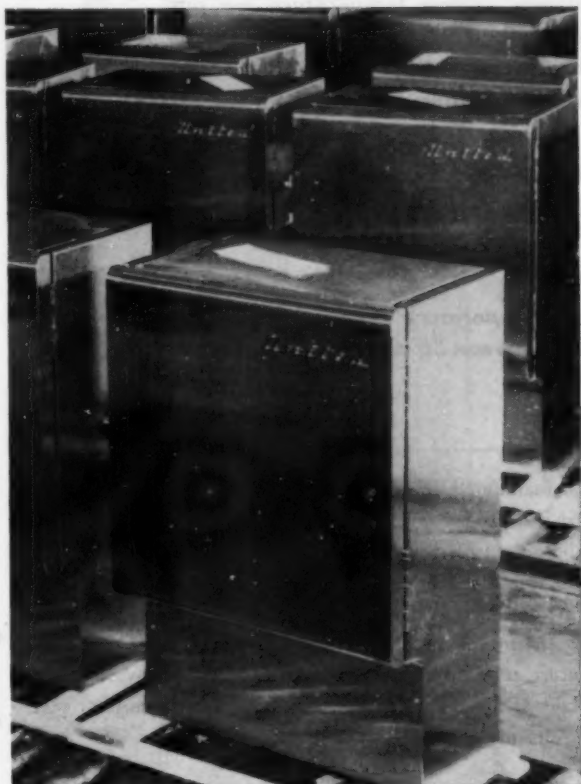
Shearing a sheet of 22-gage Stainless Steel.



Forming a component of a milk dispenser on a brake.



# Refrigerator Company milk dispensers from Stainless Steel



*Hudson, Wis., firm has worked Stainless successfully since 1940 with standard equipment; produces 100 units daily*

• Using the same equipment with which mild steel is fabricated and making only a few appropriate minor changes in shop practices, United Refrigerator Company, Hudson, Wis., is currently fabricating Stainless Steel milk dispensers at a rate of up to 100 a day.

The milk dispensers, providing cold milk in glasses in schools, restaurants and the armed forces, are made primarily of 22-gage Stainless Steel. Fabricated parts include exterior top and back; ends; bottom support; liner back top, sides and bottom; liner filler; filler backing strip; door cover; interior door pan; lower panel; stiffener, and lower front.

United has been manufacturing these dispensers since 1951 and has been fabricating Stainless Steel since 1940. Experience has shown that Stainless fabrication presents no special problems. No special equipment is needed for Stainless jobs; all steps described here take place on standard equipment.

The only changes in shop practice when Stainless is worked involve the use of sharper dies, extra care and use of paper protection to prevent scratching the smooth stainless surface.

United's experience proves once again that "Stainless Steel is not difficult to fabricate—it's just a little different." And United States Steel's representatives will be happy to help you minimize this difference by recommending the right grade of Stainless and the most efficient fabricating methods.

## FABRICATING OPERATIONS

### Spot-welding Stainless Steel.



**SHEARING**—Four end pieces are cut from an 84" x 32 $\frac{3}{4}$ " sheet without waste. A ten-inch shear rated 14-gage capacity is used for shearing all parts.

**PUNCHING** — Nail, screw and base holes are punched on a 40-ton punch press. There is no noticeable difference between Stainless and milder steels.

**NOTCHING** — Slits, V-notches and other cuts are made on 20 to 35-ton presses which handle Stainless as well as mild steels.

**TAPPING**—Doors are tapped for door lugs.

**BRAKING**—Nearly all exterior parts are brake formed. Special set-ups and die combinations permit rapid forming of a variety of bends in a series of quick operations. Dies are kept smoother than usual and paper protection is used. Several types of brakes are used.

**SOLDERING** — Corners and liner are soldered with acetylene and oxygen torches.

**WELDING**—Top, back and ends are spot-welded together.

**GRINDING** — Sharp burrs on corners are removed with hand files and abrasive wheels.

UNITED STATES STEEL CORPORATION, PITTSBURGH • AMERICAN STEEL & WIRE DIVISION, CLEVELAND • COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO  
NATIONAL TUBE DIVISION, PITTSBURGH • TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. • UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS  
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

## USS STAINLESS STEEL



SHEETS • STRIP • PLATES • BARS • BILLETS  
PIPE • TUBES • WIRE • SPECIAL SECTIONS

4-1071

UNITED STATES STEEL

# New Furnace Code Proposed

(Continued from page 113)

## LIMITING CONDITIONS FOR RATING

**Flue gas temperature** — not more than 730 or less than 300 F above inlet air temperature.

**Heat exchanger surface temperature** — not above inlet air temperature by more than 930 F if heater is constructed of gray iron castings or low carbon steel, unless evidence shows material will withstand higher temperatures. Maximum surface temperature must in no case exceed a value 100 F below scaling temperature of metal used.

**Heater casing temperature** — not more than 90 F above air temperature except within 6 in. of flue outlet or other casing openings.

**Carbon monoxide** — must not be present in quantities detectable by Orsat apparatus.

**Air temperature rise through heater** — between 50 and 85 F.

The test period specified is at least two hours following a period of preliminary operation to insure steady state conditions during the test.

The suggested form for the test report indicates a logical order for listing the features of the heater, pertinent data with reference to the fuel, and test readings. Another section shows the method of computing the results leading to the final determination of the gross output ratings and the quantity of air delivered.

The test results indicate that the furnace complies with the established limiting conditions and, therefore, con-

firms the manufacturer's desired input. The flue gas loss is subtracted from the input to give the efficiency and hence the output or rating may be computed as the product of the input and the efficiency.

The air delivery (standard air) in cfm is computed by dividing the hourly output in Btu by the product of the temperature rise and the factor 1.08. This factor converts the weight of air heated at a given temperature rise per hour to cfm of air heated through the same temperature rise.

## Offer Three Types of SBA Loans

(Continued from page 88)

production or to insure a well-balanced economy.

In addition to the fundamental qualifications already listed, the small businessman requesting an SBA loan must meet these requisites:

1. He must be of good character.
2. He must show evidence of ability to operate his business successfully.
3. He must have enough capital in the business so that with the SBA loan it will be possible to operate on a sound financial basis.
4. On a term loan, the past record and future prospects of the business must indicate enough future income to provide reasonable assurance of repayment.

The maximum loan to any one borrower is \$150,000; the maximum maturity, 10 years.

The leaflet describes in detail the three types of SBA

business loans: bank participation loans, direct loans and disaster loans. In the first case, banks are often willing to make a loan to small firms if SBA will participate, and SBA may do so for up to 90 per cent of the amount of the loan. The bank makes the loan and determines the interest rate to be charged, with a minimum rate of 5 per cent annually on the SBA portion of the loan. Also defined is the difference between SBA "deferred" or "immediate" participation.

On direct SBA loans (granted only if extension of credit by banks alone or jointly with SBA is not possible) the interest rate is 6 per cent.

Also in the commercial, industrial and financial loans section of the leaflet are details on qualifications, interest rates, etc., for loans awarded by the Treasury Department, the Federal Reserve System and other agencies.

# BERGER FURNACE

with perim-a-base

# GOES PROMOTIONAL



*We'll help you LOCALLY  
with a POWERFUL AD CAMPAIGN*

Now more than ever, you'll want to be a Berger Furnace Dealer—because we're offering a *local* selling program that can't miss. Use our one-minute TV pitch—it has "hard-sell" to bring you "live" replacement heating inquiries. We'll cooperate on a newspaper campaign to bring in more "live" ones. Mail a colorful Berger flier to your prospect list, and then back it up with free point-of-sale counter cards and a four page brochure. And Berger goes one step further—we provide concise guide-books to help your salesmen sell complete furnace and Perim-a-Base installations for really healthy profits.

## BERGER FURNACES

Your customers will like everything about Berger warm air furnaces—the way they quietly supply clean, gentle warmth. Compactly manufactured of heavy gauge steel with a baked-on enamel finish, Berger furnaces look impressive . . . and they operate at low fuel cost because BERGER'S HEAT WRINGER principle (long flue passage with frequent restrictions) squeezes and uses every bit of heat. There's little maintenance needed on Berger furnaces—just sell 'em and forget 'em.

## PERIM-A-BASE THE BEST ANSWER FOR COMBINATION HEATING-COOLING INSTALLATIONS

You'll be selling the only system that delivers convected and radiant heat, together with full circulation of clean fresh air, *plus* humidification or dehumidification as needed. And Perim-a-Base is as unobtrusive as a base-board. Backed by the Berger Furnace *local* advertising promotion, the Berger package—Warm Air Furnace and Perim-a-Base—must be a money-maker for you.

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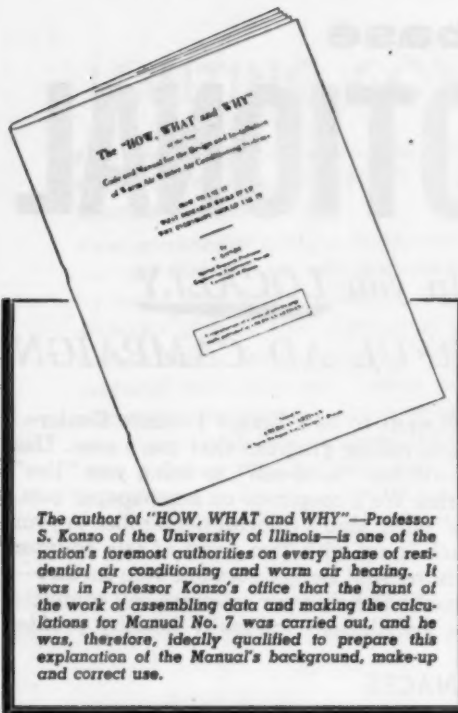
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## An Exhaustive and Clear Explanation of Manual No. 7 That Shows You—



The author of "HOW, WHAT and WHY"—Professor S. Konzo of the University of Illinois—is one of the nation's foremost authorities on every phase of residential air conditioning and warm air heating. It was in Professor Konzo's office that the brunt of the work of assembling data and making the calculations for Manual No. 7 was carried out, and he was, therefore, ideally qualified to prepare this explanation of the Manual's background, make-up and correct use.

- HOW to Use It Correctly
- WHAT Experience Is Behind It
- WHY Every Dealer Should Use It

## "The HOW, WHAT and WHY of the

### Code and Manual for the Design and Installation of Warm Air Winter Air Conditioning Systems"

by S. KONZO

Special Research Professor—Engineering Experiment Station, University of Illinois

75 Pages — 8 1/2" x 11" — \$1.00

Users of Manual No. 7 will find this "HOW, WHAT and WHY" booklet invaluable toward acquiring a clearer understanding of the Manual and properly applying it in the planning and installation of warm air winter air conditioning systems. Published originally as a series of articles in the magazine AMERICAN ARTISAN, this clear and comprehensive analysis has proved so helpful to dealers everywhere that now, in response to a wide demand, it has been reproduced in full in this new 75-page booklet "HOW, WHAT and WHY."

Professor Konzo begins "HOW, WHAT and WHY" by telling why a standard designing procedure for warm air winter air conditioning systems was needed by the industry. He reveals how the country's leading manufacturers of warm air heating equipment got together to work out such a method . . . how nearly 200 of the industry's key engineers held scores of meetings over a long period to coordinate data and experience in working out the dependable, simplified design and installation procedure which Manual No. 7 now offers.

Following this introduction, "HOW, WHAT and WHY" goes into a detailed explanation of the designing procedure itself, section by section. It shows the research and experience behind every rule, recommendation, and table the Manual contains. It tells why such factors as temperature drop in ducts, c.f.m. air delivery, air changes per hour, and various other factors which were once considered vital in the planning of forced air heating systems no longer need concern the designer. It provides much interesting supplementary information and comment which helps make each step in the suggested procedure easy to follow and assures the user of the Manual's complete soundness.

An especially useful feature of this explanatory booklet is a Cross Index which permits finding quickly full information about any item in the Manual which is not wholly clear. All in all, this "HOW, WHAT and WHY" booklet will not only assist owners of the Manual to use it to the fullest possible extent, but it will, in the bargain, add materially to their knowledge of every phase of winter air conditioning.

### Table of Contents

- The New Manual Simplifies Engineering
- How to Figure Heat Losses
- Furnace Selection and Rating
- Blower Selection and Blower Ratings
- Successful Blower Operation
- Registers—Locations, Types, Sizes
- Procedure for Making Plant Layouts
- Equivalent Length of Fittings
- Equivalent Length of Registers
- Sizing the Branch Ducts
- How Tables 8 and 9 Were Established
- Sizing Return Air Ducts
- Trunk Duct and Bonnet Construction
- Sizing of Trunk Ducts
- How to Adjust and Balance a Warm Air Winter Air Conditioning System
- Reference List
- Cross Index

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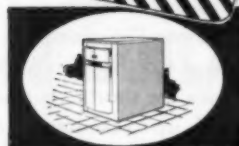
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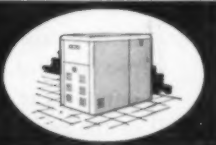
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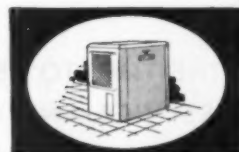
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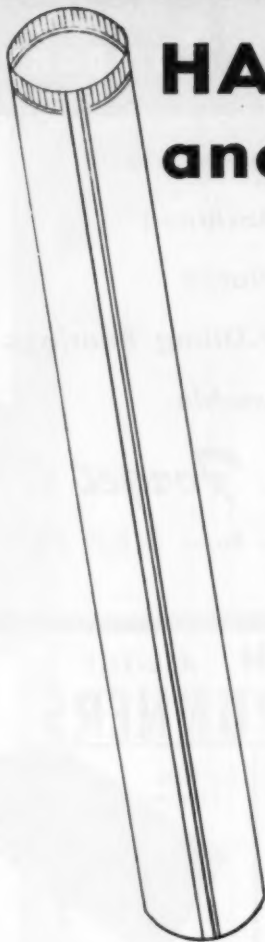


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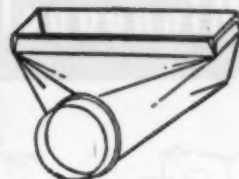
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Duluth, Minn.	Oct. 18-19
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Fargo, N. D.	Oct. 7-8
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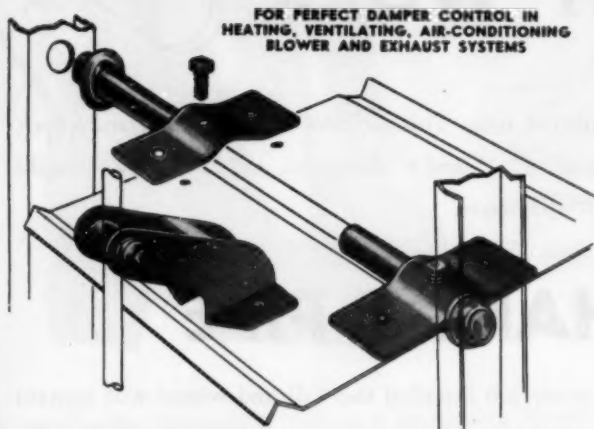
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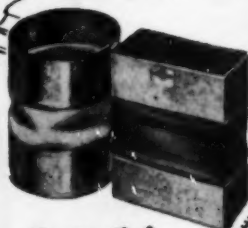
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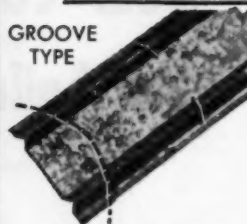


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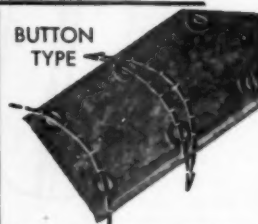
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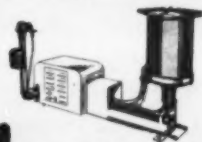


# Why a furnace that's white?

**Why, for that matter,** do nine out of ten buyers prefer a white water heater, washer, dryer, ironer or incinerator? The answer is, of course, that white enamel *looks clean, stays clean,* and is easier to *keep clean* than other finishes.

And since in most new homes all of these appliances are grouped together, either in the utility room or basement, this important *outside* feature of Freeman Furnaces together with the extra heavy electrically welded heating elements and complete wrap-around insulation on the *inside*, offer you sales features which go beyond price competition.

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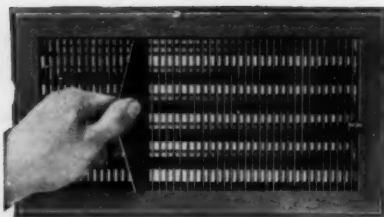
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The reasons why are easy to see. The Most BEAUTIFUL of all Base Diffusers—Lowest Cost—Most Efficient. It can be installed against studding or lath, plastered walls, or baseboards of old homes. The GREAT TIME-SAVER—CONTRACTORS Say The No. 1000 U. S. DIFFUSER cuts installation Time of Two Men for one Day on each

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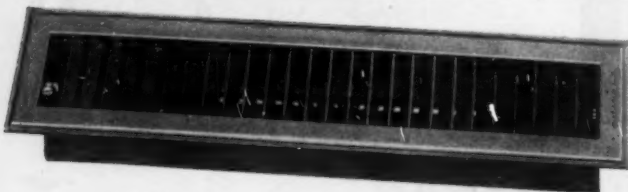
System balancing can be done at the register by one man instead of two. Diffuser has its own full-length damper with Patented Set Lock. Ends need for supply pipe dampers. Adjustable Slide-Plate bottom openings can be set as desired to avoid joists or other wall obstructions—saves the labor of cutting openings. Sizes are No. 1024 (2 Foot long); No. 1048 (4 Foot long); No. 1096 (8 Foot long — 2 sections).



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Others are still trying to rival the performance of U. S. No. 256 without success. This is the perfect Air-Conditioning register for meeting all installation situations.

Gives you complete versatility in distributing air from any supply direction to any Distributing direction.



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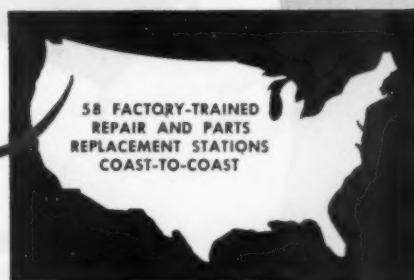
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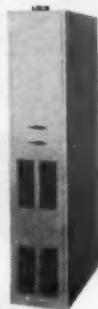
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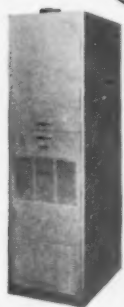


### **Cozy Challenger Floor Furnace**

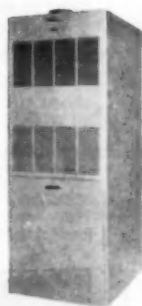
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Tested and approved by American Gas Association Laboratories under American Standards for alcove and closet installations when installed according to manufacturer's printed instructions.

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Petro heating units are easy to install, too. They are compact and sturdy, and have easily accessible duct outlets and wiring connections. Send for free specification sheets and information.

Residential Oil and Gas Burners, Oil and Gas Furnaces and Boilers,  
Industrial and Commercial Oil, Gas and  
Oil-Gas Combination Burners

# PETRO

T.M. REG. U.S. PAT. OFF.

OVER 50 YEARS OF LEADERSHIP IN  
AUTOMATIC HEATING AND POWER EQUIPMENT

## WHY IT PAYS TO BUY SHEETS and STRIP FROM US



**You get consistent USS high quality**

• All the sheets and strip that we sell are the dependable, top quality products of United States Steel—manufactured under close quality control that insures uniformity. And we, at U. S. Steel Supply, make certain that their quality is intact when you get your order . . . our sheets and strip are stored right and bundled right to arrive in top shape.

Each U. S. Steel Supply ware-

house has ample stocks of steel sheets and strip of various types, grades and sizes to fill your orders promptly, exactly.

Next time you want good, dependable steel with service to match, contact U. S. Steel Supply. Call us for: hot rolled, cold rolled, Vitrenamel, galvanized, galvanealed, paint bond, corrugated, long terme sheets, and hot rolled or cold rolled strip.

### TRIPLE SECURITY

**What you want  
When you want it  
At the right price**

## U. S. STEEL SUPPLY

**DIVISION**

*General Offices*  
208 So. La Salle St., Chicago 4, Ill.



*Warehouses and Sales Offices*  
Coast to Coast



UNITED STATES STEEL

# **LENNOX**

## **HEATING-AIR CONDITIONING CERTIFIED DEALER**



**PRODUCTS**



**SELLING**



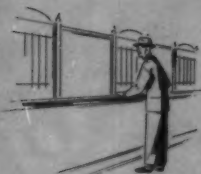
**ENGINEERING**



**SERVICING**



**MANAGING**



**FINANCING**

**9 Factories To Serve You Faster**

Marshalltown, Iowa  
Syracuse, New York  
Columbus, Ohio  
Fort Worth, Texas

Pasadena, California  
Salt Lake City, Utah  
Decatur, Georgia  
In Canada: Toronto and Calgary



**A**ny way you look at your business you'll see why the Lennox dealership is more profitable all the way around. In the shop or out selling... at your desk or in a prospect's home... making an installation or handling a service call... you cash in on the direct Lennox factory-dealer "partnership" which has been such a pattern of success year after year. Yes, every phase of *your* business benefits when you display this sure sign of better business.

## The **SURE SIGN** of **BETTER BUSINESS**

**Products**—Lennox gives you more to sell—a complete line of advanced design heating and air conditioning models backed by the popular, easier-to-sell Lennox name, constant advertising, and the biggest investment in the furnace business.

**Selling**—Lennox gives you more to help you sell—superior advertising and merchandising aids, profitable sales training, hard-selling programs that get sales results... plus valuable direct factory assistance.

**Engineering**—Lennox advanced designs simplify installation... make it easy to convert fuels or add units. Perma-flo heating assures better customer satisfaction. Lennox shares your problems, and free engineering help is on call for special jobs and layouts.

**Servicing**—Your men get practical training at Lennox factory and field service schools. Special programs like the Lennox service policies and cleaning campaigns keep your service department operating at a good profit all year around.

**Managing**—As a Lennox dealer you get personal help in the better business practices that make every part of your operation more efficient and profitable... and you capitalize on the capable experience and wholehearted cooperation of the entire Lennox organization.

**Financing**—Lennox works closely with you on this important part of your business... assisting you in the financing of your purchases and sales. This is typical of the extra benefits you get from the Lennox direct factory-dealer relationship.

If you *are* displaying the Lennox sign of better business you already know how profitable it is. If you *are not* a Lennox dealer, why not get the complete Lennox Dealer Story. There's no obligation and a profitable Lennox dealership may be available in your territory. Write or wire your nearest Lennox office now.

# LENNOX

THE LENNOX FURNACE COMPANY • SINCE 1895  
AIR CONDITIONING AND HEATING SYSTEMS



*in warm air heating... more families buy Lennox than any other make!*



# "JUST BETWEEN US . . . Better Check Our Money-Saving **Viking** HUMIDIFIER DEAL



See here why dealers like yourself prefer the "2300". Then see your Viking Distributor about this special offer." That recommendation from Dave Ahern, Viking's New England Representative. //

## Viking's "2300"

### ...The Complete Line Furnace Humidifier

For gravity or forced air furnaces of any size . . . with evaporating capacity adjustable to any home.

### "One Model That Fits All Plenums . . .

Sure we like that idea. Saves us and our dealers the inventory problem of different size units for different size homes and furnaces. Here we get one model that fills all size plenums and is adaptable to humidify even the biggest homes". That's what Leslie Algar of Sid Harvey, Inc. in Valley Stream, N. Y. told us.



### "They Simplified Our Installation Problem . . .



All I need is a drill, tin snips and a screw-driver. Viking even gives me a full-size template to help me cut the plenum opening. Only way they could make it easier is to include an armchair for me". That's what Jim Davis of Mutual Service Co. in Woodmere, N. Y. said.

### "Homeowner Services It Himself . . .

My experience with people who have purchased the "2300" proves Viking's claim of simple durable design. The indestructible float is really indestructible. And the servicing information baked on the access plate lets the customer make his own minor adjustments". Those words of approval from Joseph Spatz of Home Service Co. in Littleneck, N. Y.



**See Your Viking  
Humidifier Distributor Today . . .**

**Special Offer To Dealers  
Expires October 15, 1954**



DIVISION OF THE NATIONAL RADIATOR COMPANY  
5601 Walworth Ave. Cleveland 2, Ohio



Viking  
Blower Packages



Viking  
Blower Assemblies

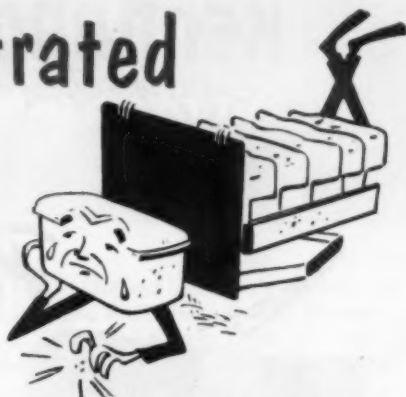


Viking  
Humidifiers

**Other Viking  
Products  
Dehumidifiers  
Attic Fans  
Window Fans**

Standardize on Skuttle — The line is complete — Parts are interchangeable

# A humidifier is frustrated if it hasn't good evaporating plates



**Patented Vapoglas Plates absorb  
more water • Diffuse more •  
Last longer without clogging •  
Standard in Skuttle Humidifiers**

No humidifier can be any better than its plates—because the plates are the only elements that can do any humidifying. The rest of the device exists merely for supporting the plates and supplying them with water. Any humidifier is thwarted of its life purpose unless it has good plates.

## BEST PLATES — A MUST

Hence it is of first importance that the humidifier you install be equipped with the best in plates—that the plates you use for replacement be the best.

## VAPOGLAS — THE BEST

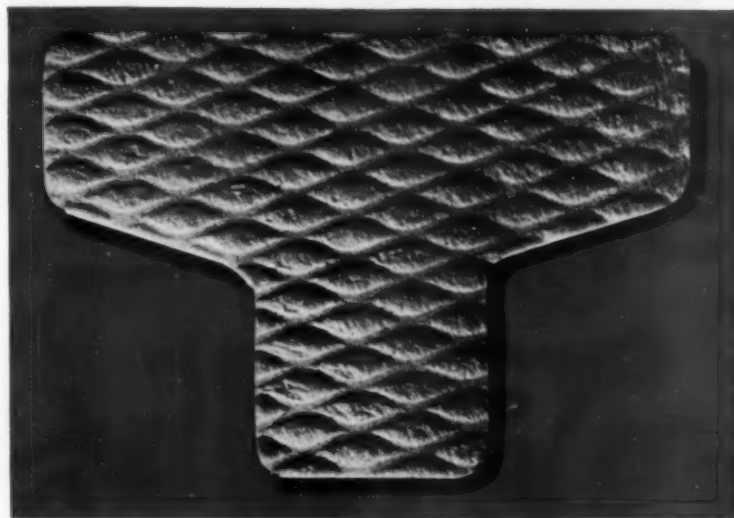
By every test, Patented Vopoglas Plates are the best. They absorb 73% more water, (pound for pound). They have 83% open space (to resist clogging) against 55% for the next best. They are lighter, sturdier. Drop tests show they resist breakage better.

Patented Vapoglas Plates are made of pure glass wool compressed and stabilized under heat.

All Skuttle Humidifiers in which plates are used have Vapoglas plates.

If it's a Skuttle—it's a better Humidifier with better plates.

For Any Warm Air Heater There's A Skuttle Humidifier That Does It Better.



**Note these test results on evaporating plates**

Type Plate	Dry Weight Ounces	Wet Weight Ounces	Gain Dry to Wet*	Open Space in Plate†
Patented Vapoglas	1.5	3.6	140%	83%
Plate B	3.4	4.6	38%	55%
Plate C	1.67	2.61	54%	42%
Plate D	9	11.5	28%	27%

Drop test on concrete floor shows Vapoglas has greatest resistance to breakage.

\*Indicates water absorption.

†Indicates resistance to clogging with water chemicals.



6973

# Skuttle

**MANUFACTURING COMPANY**  
MILFORD, MICHIGAN

**KENNARD**  
*Engineered*

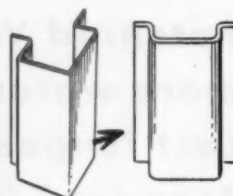
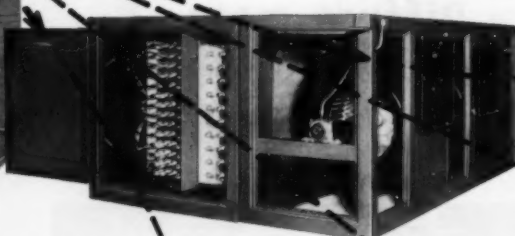
## AIR CONDITIONING

### BLOWER UNITS

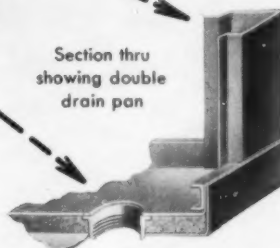
give you full value

*Plus*

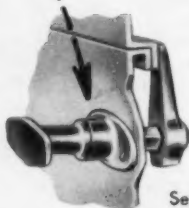
- Penta Post Frames (gives strength to spare). Test as shown by Independent Testing Laboratory.
- Drain Pans—double metal pan under coil section completely seals Insulation.
- Multiple Access Panels, all fitted with corrosion proof solid die-cast aluminum alloy latch handles.



Penta-Post Construction



Section thru showing double drain pan



Section of Panel Showing Latch

Air Conditioning Blower Units. Vertical Floor Type and Horizontal Units. 13 sizes—300 to 21,600 CFM—Catalog AC-1.

#### EVERY KENNARD REPRESENTATIVE

was selected for his know-how and ability to help you solve your air conditioning problems. He's probably your neighbor—Phone him today.

#### KENNARD SHELL AND TUBE LIQUID CHILLERS

Direct Expansion  
Freon 12-22



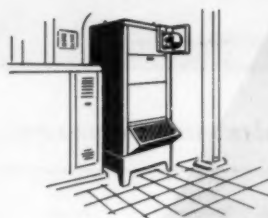
It's in the fin  
and the fin is  
in the tube.

Revolutionary internally finned tubing makes them better than 50% lighter and smaller—positive oil return—no Freon head gasket (exclusive with KENNARD)—smaller Freon charge. Sizes 2 to 200 tons. Catalog LC-1.

#### KENNARD KT WATER SAVERS (Induced Draft Cooling Towers)

INDOOR

OUTDOOR

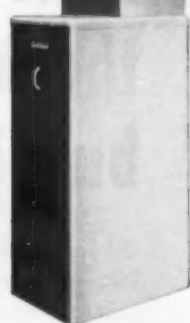


Centrifugal type fan, redwood wetted deck.  
5 popular sizes 3, 5, 8, 11 and 16 Tons.

Catalog KT-2.

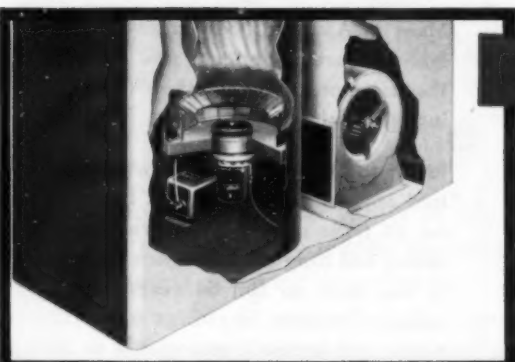
**KENNARD CORPORATION • 1831 S. HANLEY ROAD  
ST. LOUIS 17, MO., U.S.A.**





... how **fluid heat**  
gives you all you need to  
**make more sales**

Because the Fluid Heat Oil-Fired line is so complete . . . featuring Pressure Burners, Wall Flame Rotary Burners, Warm Air Furnaces and Boiler Burner Units . . . every house is your prospect. Large or small, old or new, every installation can be a Fluid Heat installation because you can supply customers with the ideal unit for their requirements. The completeness of the line means home owners and builders alike are your potential customers. In the complete Fluid Heat line you have a natural sales-blazer and profit maker.



**make more sales**

Fluid Heat quality gives you all the selling points you need to make prospects customers. The Wall Flame Rotary Burner, for instance, has set a new standard of heating efficiency and economy . . . efficiency and economy that's easy to recognize, easy to sell. This Rotary Burner is ingenious in design, rugged in construction, beautiful in appearance and economical in operation.



**make more sales**

National advertising in publications like *Saturday Evening Post*, *Better Homes & Gardens*, *American Home*, *Living for Young Homemakers*, *House & Garden* and *House Beautiful*, will pre-sell your prospects day in and day out throughout the year. This hard-hitting program, plus the Fluid Heat Sales Manuals and attractive, detailed literature, gives you maximum support in your selling efforts . . . helps you build sales and profits. Want more details on how a Fluid Heat dealership can help put more money in your pocket? Then write today. Address: *Fluid Heat Division, ANCHOR POST PRODUCTS, INC.*, 6720 Eastern Avenue, Baltimore 24, Md. or Coolbaugh Street, Red Oak, Iowa.

**fluid heat**  
AUTOMATIC HEATING EQUIPMENT  
"WORLD'S ECONOMY CHAMPION"

Division of ANCHOR POST PRODUCTS, Inc.  
Sales Offices and Factories: Baltimore, Md. and Red Oak, Iowa



## it keeps the home fires burning!

Oil heat — automatic, dependable, economical — is a symbol of comfortable living in homes everywhere.

Many of America's best known oil burner manufacturers depend upon Emerson-Electric motors to keep their units operating efficiently.

Emerson-Electric builds motors for specialized applications such as oil burners, and for all types of equipment where dependability and long life are of first importance. It has done so for 64 years, and offers standard motors in ratings from 1/20 to 5 h.p., and hermetic motors 1/8 to 20 h.p. Your inquiry is invited.

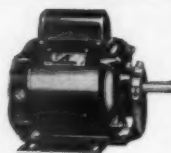
**THE EMERSON ELECTRIC MFG. CO.**

St. Louis 21, Mo.



### EMERSON-ELECTRIC MOTORS

**For Belted Fans  
and Blowers**



These motors incorporate all the electrical and mechanical specifications best suited for this service. Split-phase motors, available in 1/6, 1/4 and 1/3 h.p., with resilient mountings and automatic reset thermal protectors. For complete data write for Motor Bulletin No. M-436.

**EMERSON**  
MOTORS • FANS



**ELECTRIC**  
APPLIANCES

There's money in the air...  
when you sell **CHRYSLER AIRTEMP!**

## Get more selling helps from Chrysler Airtemp



Plus...

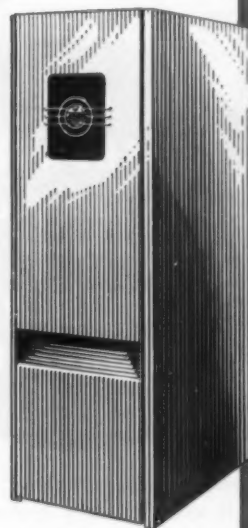
THIS NEW COMPLETELY-DETAILED  
PROGRAM TO MAKE YOUR ADVERTISING

**more profitable!**

To make the great variety of selling helps that are available to Chrysler Airtemp Heating Dealers more productive, we are introducing a service never before available in such comprehensive form. It's a completely-detailed program to guide you every step of the way in planning and scheduling your advertising to secure the best results in sales!

This guide gives the best months in which to advertise. It shows you how to establish an advertising budget based on your sales goal and participation by Chrysler Airtemp. It even outlines a specific program based on a specific budget, scheduling direct mail, newspaper advertising, radio and TV commercials to produce the greatest assurance of quick returns.

Here is an important reason why it will pay you to sell Chrysler Airtemp Furnaces—but just one of many! Get all of the facts—return convenient coupon now!



Hi-Boy Furnace—8 Hi-Boy and 10 Lo-Boy models for gas or oil.

# CHRYSLER AIRTEMP

heating • air conditioning for homes, business, industry

Airtemp Division, Chrysler Corporation, Dayton 1, Ohio

Airtemp Division, Chrysler Corporation  
P.O. Box 1037, Dayton 1, Ohio

I would like to know more about the Chrysler Airtemp Franchise.

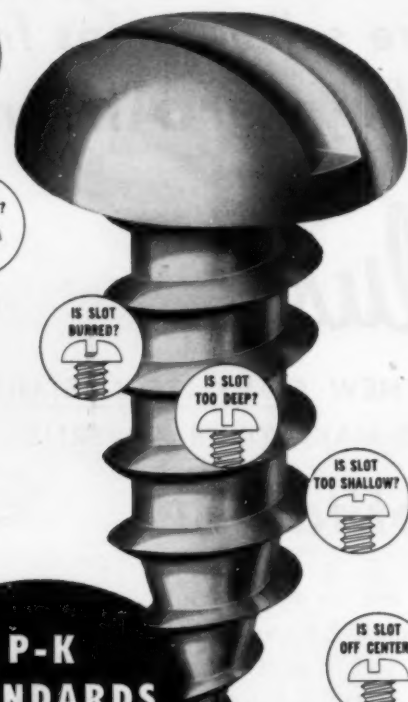
Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

AA-9-54

# Are Your Sheet Metal Screws HEADED FOR TROUBLE...?



**P-K  
STANDARDS**  
make sure you get  
screws

**HEADED  
for SAVINGS**

These and many other symptoms of Screws "headed for trouble" don't get by P-K inspectors. That's why all P-K Sheet Metal Screws can be "Guaranteed First Quality".

Screws are sometimes like people. If they "lose their heads" under pressure — if they turn out to be "softies" — if they don't "square up", *they are headed for trouble.* It takes only a few "bad" screws in each box to slow down the job and set up weak spots in the installation.

That is why quality standards were set so high when P-K developed the first Sheet Metal Screws over 37 years ago. Today, with even *higher standards*, they continue to take top honors for dependability, despite many efforts to match them.

P-K Sheet Metal Screws are "headed for savings" — not only headed, but threaded, pointed, and heat-treated with the same purpose — to save you time and trouble on the job.

You'll find the type, size, and head style you need in the complete P-K line . . . several standard types and sizes in stainless steel. Ask for samples. Parker-Kalon Division, General American Transportation Corp., 200 Varick St., New York 14.

## PARKER-KALON®

*The Original* **SELF-TAPPING SCREWS**



**IN STOCK** . . . see your nearby P-K Distributor







# **NOW** you can build a sale by "building a furnace" right before your prospect's eyes

## **Never Anything Like It In Furnace Retailing**

*Here's the finest and most effective sales tool ever devised for furnace merchandising. It has proved itself up to the hilt in other industries. When it comes in, sales go up. Now Armstrong brings it to the furnace business.*

It's no ordinary "flop-over" presentation. By means of transparent sheets it lets your prospect see what makes a furnace work. It lets you "build" a furnace on your prospect's table. It bares the secrets of good construction, good combustion, good heat transfer. It takes the mystery out of furnace buying. It *shows* what you can only claim.

*It sells.*

Hard, factual, visual selling answers your prospect's four most important furnace questions: 1) Who makes it? 2) Who installs it? 3) What makes a good furnace? and 4) What is the best type of furnace for *my* home? The new

## **How the New Armstrong Visual Presentation Works**

Transparent acetate sheets, each printed with a different burner or furnace part, form the heart of the Armstrong presentation. The furnaces and burners are built part-by-part by turning the pages one at a time over a printed base page. The dealer shown above is about to put the flame spreader on the otherwise complete gas burner. You not only build furnaces, you build confidence and understanding, and you build sales.

A sturdy easel binder holds the presentation at exactly the right angle and allows easy flipping of the "X-Ray" pages. It's protected on the edges so as not to mar your customer's furniture.

Armstrong Visual Sales Presentation leaves no doubt in the prospect's mind as to Armstrong's qualities. They're all there . . . in color!

This terrific Armstrong "X-Ray" presentation is reserved for active dealers who will *use* it. And the supply is limited! Your Armstrong jobber has a copy to show you. Make a date with him today to see this wonder of furnace merchandising or drop a card to us. Do it today!



Please address department  
AA at our plant nearest you

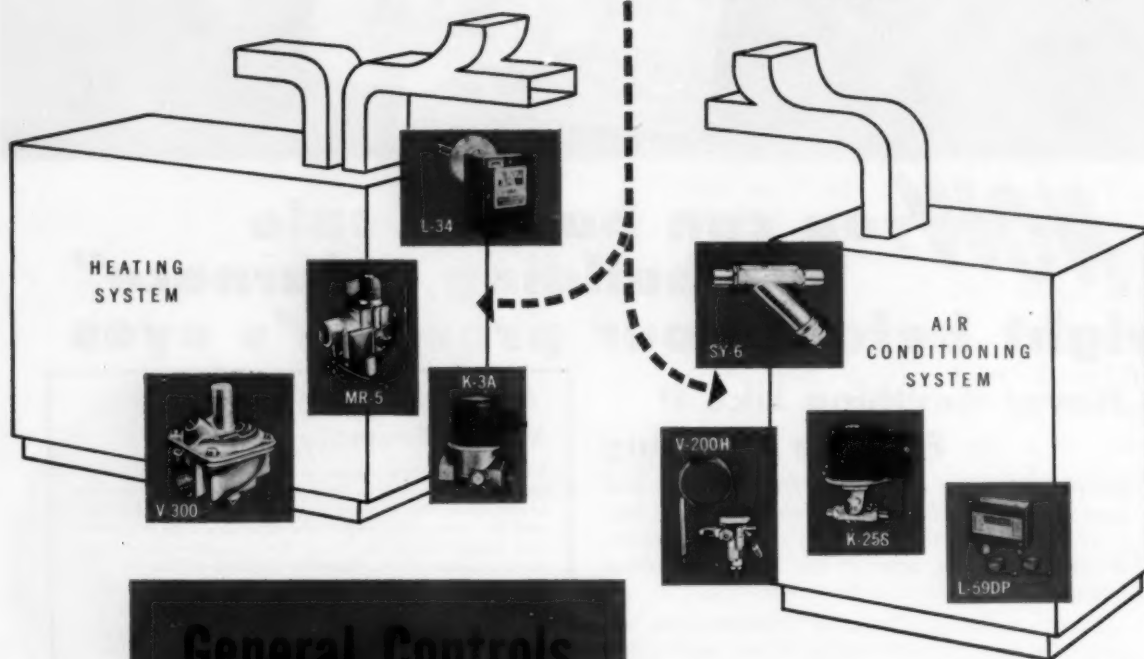
# **ARMSTRONG FURNACE CO.**

**COLUMBUS, OHIO** **DES MOINES, IOWA**

# packaged control for combination heating and cooling systems



Year around comfort is available to your customers in General Controls' T-70H room thermostat. This versatile instrument maintains even, healthful warmth when the weather's cold and air-conditioned coolness when it's hot. Investigate General Controls' complete line of automatic controls for residential heating and air cooling systems: room thermostats, fan or limit controls... automatic gas valves... safety controls, pressure regulators... and B-60 self-powered all-gas control systems. Thermal expansion valves... pressure and temperature switches... magnetic stop valves... strainers... many basic types of automatic controls with thousands of application variations. Wrap your supply and service problems up in a single package. Take advantage of General Controls' fast, reliable one-source, one-responsibility service.



*A complete  
product line with  
One source of supply,  
One responsibility*

## GENERAL CONTROLS

Plants in: Glendale, Calif., Burbank, Calif., Skokie, Ill.  
Factory Branches in 38 Principal Cities

SEE YOUR CLASSIFIED TELEPHONE DIRECTORY

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls for Heating, Home Appliances, Refrigeration, Industrial and Aircraft Applications.



# Modine gas-fired unit heaters COST YOU LESS

## 1

### TO PUT ON THE JOB

Because Modines are but half the average weight of other leading makes, no special hoisting machinery or ceiling supports are required. Installation is quick . . . easy . . . economical. In addition, shipping costs are cut to a minimum.

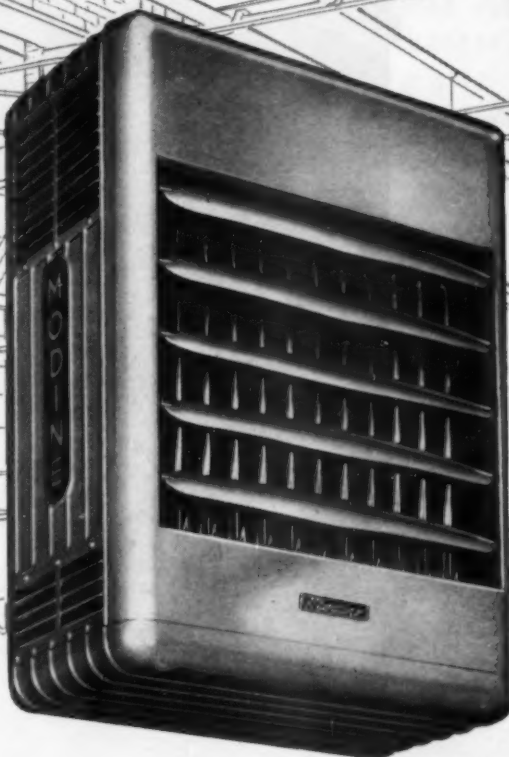
## two ways...

## 2

### TO KEEP ON THE JOB

Maintenance costs are less. Modine alone offers stainless steel burners and a choice of stainless or aluminized steel heat exchangers. And stainless has 8 times the life of ordinary steel . . . aluminized 4 times.

Modine Gas-Fired Unit Heaters are available in seven sizes—25,000 to 220,000 Btu. All are A.G.A. and C.G.A. approved.



**Y**ES, when you choose Modine Gas-Fired Unit Heaters, savings begin with lower shipping and installation costs. Advanced construction features allow a reduction in bulk while actually *improving* performance.

But real unit heating economy also demands continued high efficiency, minimum maintenance and lower fuel costs. Modine's answer: rugged construction with special long-life steels . . . superior heat throw and air volume . . . individually fired tubes to reduce radiant heat loss. So effective is the design that heat is delivered within 5 seconds after the thermostat calls for it.

This superiority is carried over from 25 years of Modine leadership in steam and hot water unit heating. Applying the same balanced performance features to gas-fired unit heaters again makes Modine the top-quality line.

There are many other important Modine advantages. Get all the facts from the Modine dealer listed in your classified phone book or use the handy coupon.

GU-1241

This 25,000 Btu Modine Gas-Fired Unit Heater weighs a mere 31 lbs. Ideal for factory offices, laboratories, wash rooms.



## Modine UNIT HEATERS

### MODINE MANUFACTURING COMPANY

1580 DeKoven Ave., Racine, Wis.

Please send me immediately a free copy of Bulletin 654 "Modine Gas-Fired Unit Heaters."

Name .....

Company .....

Address .....

City ..... Zn ..... State .....



**These  
Bright  
Spangles  
Attract  
Customers**



The thousands of gleaming zinc spangles on a Bethlehem galvanized steel sheet are a powerful sales feature. The light they reflect gives this sheet a bright, clean appearance that attracts the eye.

But good appearance is only part of the story. This coating is not only attractive—it is tight, uniform, and ductile. It provides excellent protection against corrosion. And it holds securely, even after the sheet is formed or bent.

Bethlehem galvanized sheets are made from strong, durable steel, either plain or copper-bearing. They are easy to work with, and they go a long way toward helping you turn out neat, professional-looking jobs.

**BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.**

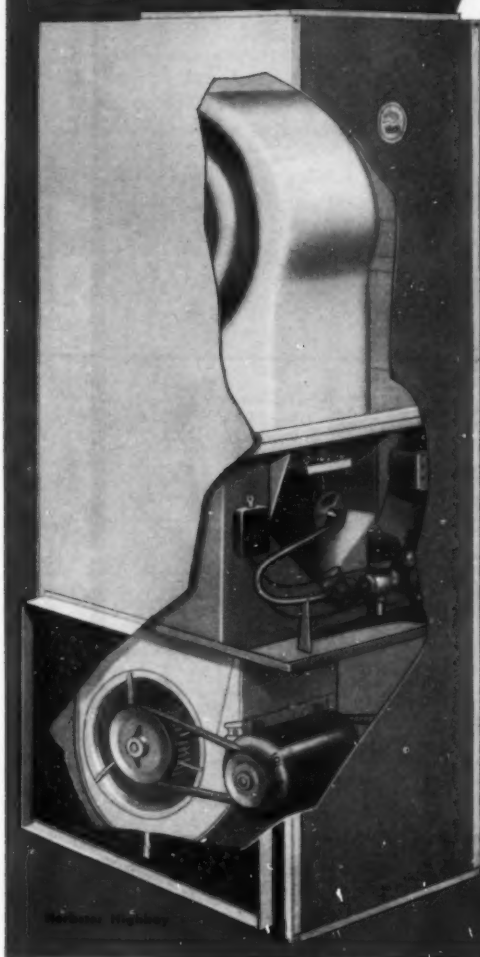
On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation  
Export Distributor: Bethlehem Steel Export Corporation

**Bethlehem  
GALVANIZED  
Steel Sheets**





# ONLY **HERBSTER** GIVES YOU **3 BIG IDEAS** TO SELL



## The Patented TORCON Cast-Iron Heat Exchanger—at the same price as a steel heat exchanger

Herbster's dealers sell gas furnaces with a one-piece cast iron heat exchanger at the same price as their competitors sell sheet steel. The exclusive, silent Herbster Torcon can't wear out, or burn out. Furthermore, Torcon's larger area of radiation means you offer the greatest efficiency and economy ever incorporated in a gas furnace.



## A Complete Line of Gas Furnaces—A miracle in heating engineering

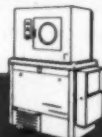
You sell a complete line of automatic, gas-fired, forced air furnaces with the Herbster line. Lowboy and Highboy types for every home owners need, plus the only gas furnace and clothes dryer combination.



## A Gas Furnace with a Clothes Dryer on Top—Exclusive with HERBSTER Dealers!

Make more money by selling your customers the idea of heating their homes and drying their clothes with one efficient unit. Clothes dryer feature enables you to make installation all year 'round. Safely dries all fabrics with filtered warm air much faster than other clothes dryers.

**Guaranteed for 25 Years!**



**DEALERS:** Write for details on America's fastest growing line of gas furnaces today. Mail coupon for Herbster Sales Plan.

**Herbster**  
**TORCON**

**HERBSTER PRODUCTS COMPANY**  
877 Addison Road, Dept. A • Cleveland 3, Ohio

Gentlemen: Please send without obligation further details on Herbster Gas Furnaces.

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_ STATE \_\_\_\_\_



## THE MAINSTAY OF YOUR BUSINESS-

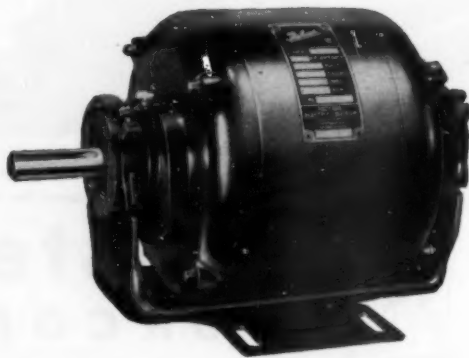
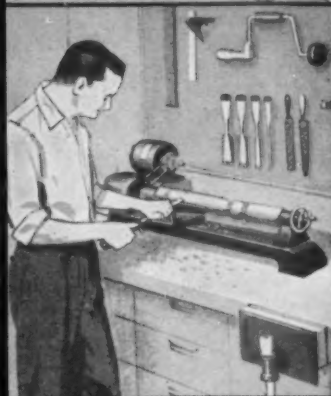
is a *satisfied customer!* And it's easy to keep your customers satisfied when you use Packard Electric motors in your product. These dependable motors have a world-wide reputation for long life and trouble-free operation . . . important qualities that help to assure continued customer satisfaction.

You benefit in two ways when you standardize your production with Packard fractional horsepower electric motors. First, you have the Packard Electric name working for you in gaining customer acceptance. Second, you have the Packard Electric motor working for you in gaining customer satisfaction.

A COMPLETE LINE OF RUGGED  
FRACTIONAL HORSEPOWER APPLIANCE MOTORS



**Packard**  
REG. U.S. PAT. OFF.  
TRADE MARK



Packard Electric Division, General Motors Corporation, Warren, Ohio



# LOOK TO.....

# HEATWAVE

## GAS FIRED FURNACES

# to BOOST your SALES... your PROFITS

Whatever your heating problem, HEATWAVES provides the solution in a type and size that will meet every requirement of each particular installation! Every model is FACTORY ASSEMBLED, delivered as a packaged unit, ready to install, and every HEATWAVE is COMPETITIVELY PRICED! Further, every model carries a 10-Year Factory Warranty!



**The HEATWAVE HORIZONTAL...**

BTU  
Input  
60,000  
80,000

for space saving installations in homes without basements; installs in attics, under floors, in service porches, attached garages, suspends from joists in homes with basements.



**The HEATWAVE HI-BOY...**

BTU  
Input  
80,000  
100,000  
120,000  
140,000  
160,000

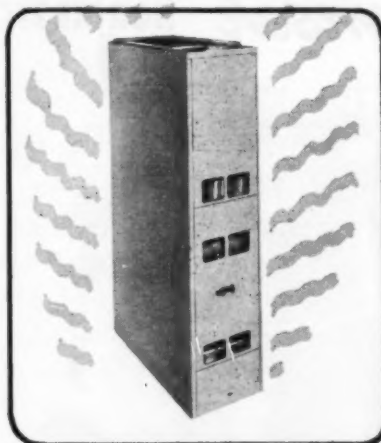
designed to meet the need of better home heating at lower cost. Completely automatic. Built-in draft diverter. Cast iron burner.



**The HEATWAVE FLOOR FURNACE...**

BTU  
Input  
27,500  
35,000  
50,000  
65,000 75,000

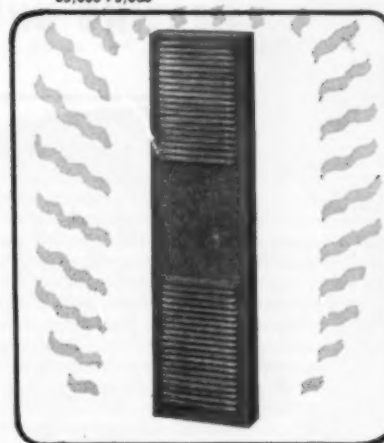
accomplishes the long-sought objective in floor furnace manufacture: QUIET operation, combined with efficiency, economy and long life.



**The HEATWAVE COUNTER-FLO...**

BTU  
Input  
80,000  
100,000  
120,000

for perimeter and under floor heating; can be installed in closet, alcove or utility room with minimum of duct work. Very economical installation.



**New, Improved, VENTED RECESSED WALL HEATER**

BTU  
Input  
Single Wall  
25,000  
35,000  
Dual Wall  
35,000  
45,000

Finest Heatwave quality. Fits in 16" centered stud spacing. Ideal for homes, apartments, offices, stores and motels. Minimum installation cost.

### EVERY HEATWAVE MODEL:

- Factory Assembled
- Fire Tested
- Ready to Install
- Competitive in Price
- Cast Iron Burners
- Smart in Appearance
- Economical to Operate
- 10-Year Factory Warranty

Southwest manufactures a complete line of 2 and 3-ton Residential Air Conditioners for use as companion units with any Forced Air Furnace.

DISTRIBUTED BY  
OUTSTANDING WHOLESALE SUPPLY HOUSES



WRITE OR WIRE — GET THE FACTS



## SOUTHWEST MANUFACTURING COMPANY

BOX 28

Subsidiary of the F. E. Myers & Bro. Co.

AURORA, MO.



*Mr. Furnace Manufacturer:*

...NOW

**YOU CAN SELL  
YEAR-AROUND  
COMFORT**

**WINTER**  
Air Conditioning

AND

**SUMMER**  
Air Conditioning

**YOUR HEATING UNIT PLUS *Tecumseh* HERMETIC**

When designing your furnace to include summer cooling for a true year-around air conditioning system, consider the advantages of a completely sealed Tecumseh hermetic compressor. The 3 H.P. Tecumseh hermetically-sealed compressor is designed primarily for use in year-around systems. This compressor will help your engineers to design the most dependable and efficient year-around air conditioning unit at the lowest possible price.

Yes, these new Tecumseh hermetics are the only compressors in the refrigeration industry today that offer so much for so little. Over 14 million Tecumseh hermetics now in the field attest to the acceptance of the Tecumseh hermetic. That is why furnace manufacturers are specifying Tecumseh in their new cooling units. And that is why it will more than pay you to investigate Tecumseh right now by writing us for complete details.

Remember, you can't go wrong when you specify the best—Tecumseh.



**TECUMSEH**



**TECUMSEH PRODUCTS**

TECUMSEH, MICH

*Company*

EXPORT DEPT., 2111 WOODWARD AVE., DETROIT MICH



## That's No Excuse



by  
**George Hochstein**

Sales Manager, Heating Division  
THE HEIL CO.

It's easy to alibi for lack of sales effort by saying that "people just aren't spending money for heating equipment right now."

People not only have the ability to pay for modern heating and cooling systems, they really have a need for them. About half of all the homes in this country are over 30 years old. About half of all the homes don't even have a central heating system. Of America's 45 million families, 65 per cent own an automobile, but only 2 per cent own an air conditioner.

There are literally millions of home owners who haven't modernized their heating plants because nobody ever asked them to. Making calls and asking for this business is far less ulcer-forming than thinking up generalized excuses for not reaching goals.

It is well to remember that we are in the business of selling, first, and installing, second. And in selling we have two alternatives. We can either work or we can worry. If we approach the problem with that in mind, there isn't much doubt about what the decision should be.



**Your wholesaler  
is your  
partner...**

## he frees you from details

Think of yourself as a trained, experienced heating contractor? If you are, you're a valuable man, and you're probably a better heating contractor than you are a purchasing agent, bookkeeper, expeditor, letter writer, or banker. Yet, unless you're buying from your heating wholesaler—and taking advantage of the services he has to offer—you're only a part-time heating contractor.

The rest of the time you're up to the neck in the details that go with doing business. You can't avoid a lot of them like billing and payroll and government forms and taxes, but you can save yourself a lot of trouble.

### Let Your Wholesaler Help You

Your wholesaler can relieve you of inventory problems, and the expense, bother, and worry that go with carrying stock. He can provide you with immediate access to all the units, all the accessories, all the parts you need. You can simplify your bookkeeping because you will need to issue fewer purchase orders, pay fewer invoices. Your wholesaler does your expediting for you, too—and he's in a lot better position to influence manufacturers.

In short, your wholesaler gives you a lot more time to use your ability where it pays off best. That time is worth money. The help that your wholesaler can give you in selling, advertising, and every other phase of your business is worth money to you, too. As a matter of fact, if it weren't profitable for you to buy from your wholesaler, there'd be no reason for his being in business!

One of a series of advertisements presented in the interests of better distribution of heating equipment all over America by THE HEIL CO., makers of HEIL Automatic Heat. This series is prepared in co-operation with the National Heating Wholesalers Association and the Central Supply Association.



# NEW CHEVROLET TRUCKS

**shorten your schedules  
and cut costs in the bargain!**

You can actually count on a Chevrolet truck doing your job faster and for less money. That's a strong claim, sure; but one that's been proved time after time on job after job.

## EXTRA POWER SAVES YOU TIME

All three Chevrolet truck engines—the "Thriftmaster 235," the "Loadmaster 235" and the "Jobmaster 261"—deliver extra horsepower for greater acceleration and hill-climbing ability. You haul your loads on a time-saving schedule and save money doing it—for with Chevrolet's higher compression ratio you use less gas.

## BUILT-IN RUGGEDNESS SAVES YOU MONEY

Stronger, more rigid frames, newly designed clutch; huskier rear axles and drive lines in 2-ton models; higher capacity universal joints in medium- and heavy-duty models—these beefed-up built-in chassis features mean your Chevrolet truck is going to stay on the job for a longer time. They also mean you can expect extra-low operating costs.

Another important advantage is Chevrolet's low original cost—lowest of all lines of trucks! You save the day you buy, and you go right on saving as long as you own that Chevrolet truck. Drop by your Chevrolet dealer's and look over the many models he has to offer. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.

**MOST TRUSTWORTHY TRUCKS  
ON ANY JOB!**



## CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

**THREE GREAT ENGINES**—The new "Jobmaster 261" engine\* for extra heavy hauling. The "Thriftmaster 235" or "Loadmaster 235" for light-, medium- and heavy-duty hauling. **NEW TRUCK HYDRA-MATIC TRANSMISSION\***—offered on ½-, ¾- and 1-ton models. Heavy-Duty **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **DIAPHRAGM SPRING CLUTCH**—improved-action engagement. **HYPOID REAR AXLE**—for longer life on all models. **TORQUE-ACTION BRAKES**—on all wheels on light- and medium-duty models. **TWIN-ACTION REAR WHEEL BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—greater holding ability on heavy-duty models. **NEW RIDE CONTROL SEAT\***—eliminates back-rubbing. **NEW, LARGER UNIT-DESIGNED PICKUP AND PLATFORM STAKE BODIES**—give increased load space. **COMFORTMASTER CAB**—offers greater comfort, convenience and safety. **PANORAMIC WINDSHIELD**—for increased driver vision. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—easier, safer handling. **ADVANCE-DESIGN STYLING**—rugged, handsome appearance.

\*Optional at extra cost. Ride Control Seat is available on all cabs of 1½- and 2-ton models, standard cabs only in other models. "Jobmaster 261" engine available on 2-ton models, truck Hydra-Matic transmission on ½-, ¾- and 1-ton models.

*If you're not selling it a year from now—*



# You'll Wish You Were!

ONE OF THE  
FASTEST-GROWING LINES  
ON THE MARKET

*Airline* heating and air conditioning, we mean! A line that's going places—fast. A line you can go with—and grow with—this year, next year, and the years after that. Because this is one line that's really on the move, a line that means business—for you. Just talk? Look:

• **Complete line.**

Gas and oil fired furnaces. Winter and summer air conditioners. Hi-boys, Lo-boys, counterflows, suspended units, conversion burners. Water heaters, too. All designed for easier, lower-cost installation.

• **Outstanding features.**

Space-saving designs. Exclusive combustion chambers, factory installed. Oil units readily converted to gas, with no loss of output. Units U. L. approved for close clearance.

• **Priced right.**

To meet—and beat—competition. Priced to sell, with full profit for you. Every sale a money-maker.

• **Quality throughout.**

Designed, engineered and built in our own plant by our own heating experts. Quality controlled from start to finish. Backed by Borg-Warner Corporation.

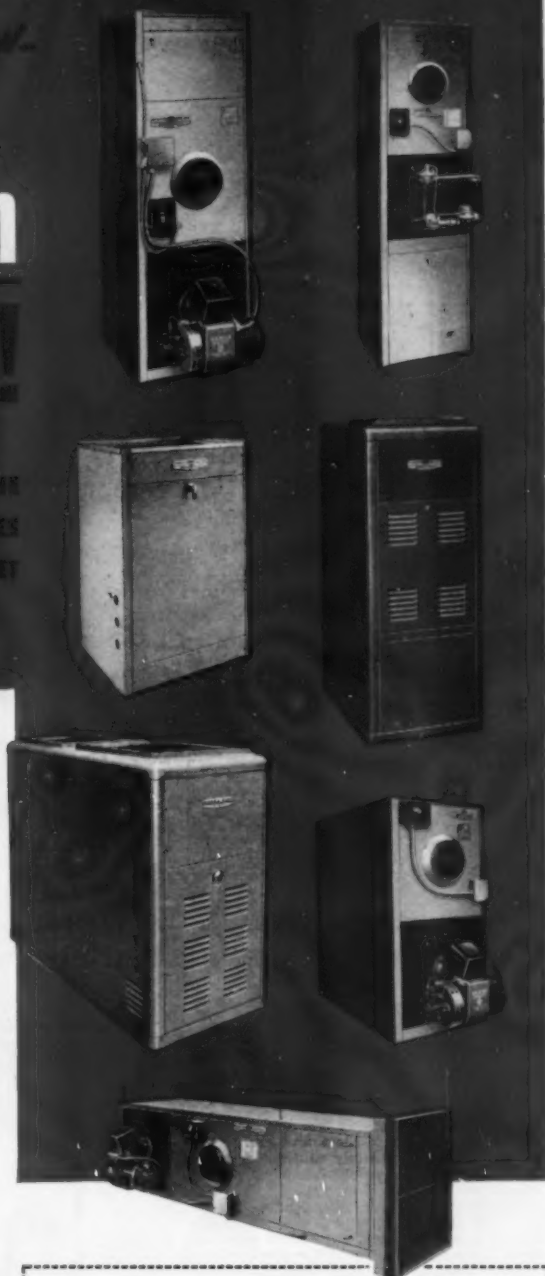
• **Factory assistance.**

Help when you need it—to swing the big deal, to close the sale, to make sure the installation is right.

So—if you're fixing to go places in heating and air conditioning—if you're looking around—if you're thinking of making a change—get *all* the facts about *Airline*. Hustle that coupon to us—*now!*



**NORGE** *Airline* **HEAT**  
DIVISION OF BORG-WARNER CORPORATION  
Kalamazoo, Michigan



**NORGE HEAT, BORG-WARNER CORP.**  
760 E. Vine St., Kalamazoo, Mich. Dept. AA

We're interested! Rush details for:

☐ Franchise Distributor ☐ Dealer

☐ Have your representative call on us.

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

# 194\* WAYS TO MAKE A PROFIT

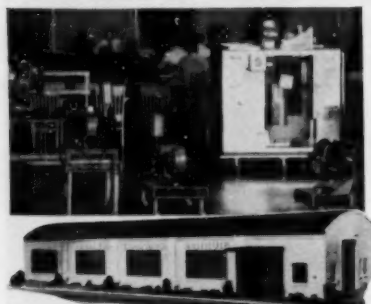
## DON'T DELAY...GET THE FACTS NOW ON THE WINKLER DIRECT FACTORY FRANCHISE

Why fool around with "short" lines—why lose sales because you can't give customers what they demand?

For the answer, look first at this Winkler parade of automatic home comfort equipment. Then just try to picture a situation which can't be satisfied with one of Winkler's 194 models and sizes. Every heating requirement as to capacity, fuel preference and type of system is covered... plus Air Conditioners and Water Heaters to round out the Winkler line of home comfort products.

The Winkler Direct Factory Franchise gives you not only the most complete *top quality* line but backs it up with a powerhouse of selling helps. Among them:

- New stocking plan makes it easy to finance a full stock.
- Strategically placed warehouses speed up delivery.
- Complete year 'round line offers extra profits.
- New merchandising tools provide everything to uncover prospects, demonstrate and sell.
- Increased national advertising—monthly sales promotion program—dealer cooperative advertising plan.



### SALESMEN MADE MONEY-MAKERS AT WINKLER TRAINING INSTITUTE!

Winkler's comprehensive training program is *free* to Winkler dealers and their personnel. In this completely equipped school, training is given in successful selling procedures—product demonstrations—business promotion methods. After individualized instruction by factory experts, trainees make actual sales presentations—learn how to close sales every month of the year.

Also offered is Engineering Course in sizing, wiring, servicing Winkler Products.



### OIL BURNERS

High pressure and famous LP low pressure models. Capacities 1/2 to 15 GPH.

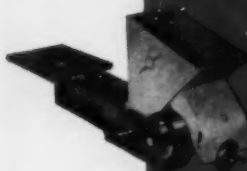
9 MODELS



### GAS BURNERS

Atmospheric and power type gas controlled burners. Capacities to 200,000 BTU.

16 MODELS



### STOKERS

Domestic, commercial and industrial models, hopper and self-feed. Capacities to 1000 lbs. per hour.

22 MODELS



### WATER HEATERS

Fully automatic gas and electric units for residential and commercial use. Capacities to 105 GPH.

12 MODELS



### FURNACES

Oil, gas and coal fired—utility, room, basement and commercial models—vertical, horizontal and counter-flow circulation. Capacities to 1,000,000 BTU.

64 MODELS



### BOILERS

Oil and gas fired, cast iron and steel, for hot water and steam systems. Capacities to 430,000 BTU.

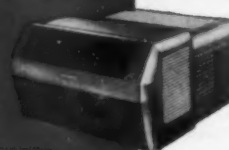
15 MODELS



### RECESSED WALL HEATERS

Oil fired in wall, oil and gas fired. Capacities to 70,000 BTU.

3 MODELS



### AIR CONDITIONERS

Room coolers, 1/2 to 1 ton. Control units, water and air cooled, 2 and 3 ton.

7 MODELS

\*194 models and sizes of home comfort equipment.

Find out NOW how to obtain a Winkler Direct Factory Franchise—write!

# WINKLER

PRODUCTS OF

## STEWART-WARNER CORPORATION

U. S. MACHINE DIVISION • Dept. A-94 • LEBANON, IND.





ANOTHER  
**AGT AIR**

PATENTS APPLIED FOR



for **BETTER AIR**

it's **ADJUSTABLE**

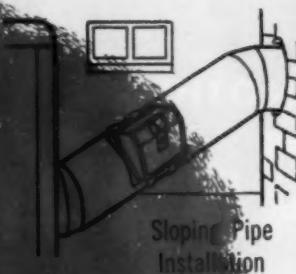
AIR DEVICES INC., 185 MADISON AVE., NEW YORK 16, N. Y.



New E-Z Dapter



Silent DuPont  
Nylon Bearings



Sloping Pipe  
Installation



*"these features  
count on my jobs"*



## install **Windmaster** and see for yourself

**Installation Features**—You can mount Windmaster on a sloping, horizontal or vertical pipe—thanks to the thrust bearing effect of the nylon bearings. The variable size E-Z 'Dapter pipe stub is already blanked and flanged—an optional accessory that guarantees full size opening. Calibrated weight makes the use of draft gauge easier—speeds up accurate adjustment without trial and error.

**Performance Features**—Large square vane provides bigger relief opening for faster action—more sensitive control of draft the instant it is needed. Vane is mounted on 45° angle, eliminating half the travel distance—no quivering to encourage pulsation nor lag-time to keep burner nervous.

**Construction Features**—Permanently silent bearings of molded DuPont nylon never rust, corrode or need oiling—and they outwear steel. Projections on bearings are permanent, positive stops that can't get bent—the vane can't go too far. Heavy gauge steel construction—attractive appearance. Three control sizes fit six different pipe sizes.

**Put a Windmaster Draft Control** on your next heating job and see how these features help you make the installation easier and quicker. Then check up on the burner performance and see how Windmaster helps assure peak efficiency and reduces service call-backs.

**Stop in at your jobber's and pick up a Windmaster Draft Control for your next heating job.**

Mr. Charles Berken of the Silent Flame Heating Company in Philadelphia, Pa. says: "Sticking bearings on draft controls and poor settings have for years caused me many service calls. Windmaster's nylon bearings and large vane are a MUST on all of our jobs now. The easy, positive setting saves the time of sending a special mechanic to calibrate it. My thanks to you."

**Windmaster**  
*Corporation*

Post Office Box 776 • Columbus 16, Ohio



YOU CAN KEEP **Profitable Business**

COMING YOUR WAY WITH

**Moncrief... NOW MORE  
COMPLETE THAN EVER BEFORE!**

Heating Units  
Gravity... Forced Air  
Year 'Round  
Air Conditioning Units  
Summer Cooling Units  
Horizontal Furnaces  
Counterflow Furnaces  
Unit Heaters... Incinerators  
Gas and Oil Conversion Burners

• Why not join the Moncrief organization and be one of the profitwise dealers who are really cashing in with Moncrief? Moncrief heating and air conditioning equipment leads the list with top quality... top performance features that your customers want! Moncrief dealers' sales are steadily mounting through satisfaction obtained with Moncrief equipment—everywhere! Builders and homeowners know the name, MONCRIEF! They have confidence in it! Confidence built up by a reputation that is second to none; a reputation established by 60 years of heating experience. Get the profit-making details from your nearest Moncrief jobber. With Moncrief you will profit—year after year.

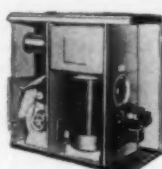
A Complete Range of Sizes to Fill ANY Order!



Counterflow Units  
Gas or Oil



Utility Units  
Gas or Oil



Winter Air Conditioning Units—Gas or Oil



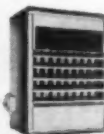
Gravity Furnaces  
Gas or Oil



Horizontal Furnaces  
Gas or Oil



Year 'Round Air Conditioner  
Heats in Winter  
Cools in Summer



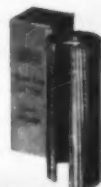
Unit Heaters  
Gas Fired

ALSO Moncrief's **SUREFIT**  
SNAP LOCK Pipe and Fittings...

Everything for ANY  
TYPE of INSTALLATION

AND...They're  
Carton Packed at  
NO EXTRA COST  
TO YOU!

Easier to Handle  
Quicker to Assemble  
Quicker to Install



MOST HEATING AND AIR CONDITIONING UNITS APPROVED FOR EITHER GAS OR OIL

**THE HENRY FURNACE COMPANY**  
MEDINA, OHIO

HEATING AND AIR CONDITIONING UNITS

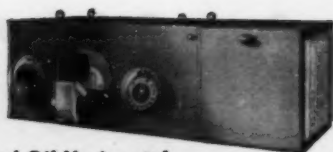
**MONCRIEF**  
SINCE 1915

FURNACE PIPE AND FITTINGS

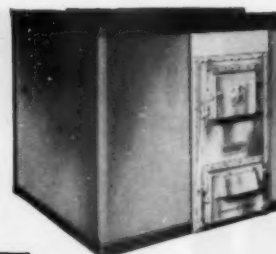


Gasaver Deluxe Lo-Boy

Assembled Oil Horizontal



Assembled Gas Horizontal



Coal Flo-Warm



Assembled Gas Lo-Boy



Assembled Oil Lo-Boy



Assembled Oil Counter-Flo



Gas Flo-Warm Gravity

# COMPARE!

Here's the most complete line of furnaces, fittings and air conditioning units ever offered.

Before you place your next orders, compare the WILLIAMSON line with the brand you are now carrying. You'll find the comparison well worth your time—profit-wise.

	GRAVITY	LO-BOY	HI-BOY	COUNTER-FLOW	HORIZONTAL
OIL ASSEMBLED	3 Models Available Later	3 Models 100,000 to 145,000 B.T.U.	3 Models 100,000 to 145,000 B.T.U.	3 Models 100,000 to 145,000 B.T.U.	1 Model 105,000 B.T.U. 1 model available later
GAS ASSEMBLED	3 Models Available Later	4 Models 70,000 to 140,000 B.T.U.	4 Models 70,000 to 140,000 B.T.U.	5 Models 70,000 to 140,000 B.T.U.	4 Models 60,000 to 120,000 B.T.U.
OIL FLO-WARM	2 Models 105,000 to 132,000 B.T.U.	8 Models 105,000 to 250,000 B.T.U.	4 Models 105,000 to 189,000 B.T.U.	2 Models 105,000 to 140,000 B.T.U.	
OILSAVER FLO-WARM	2 Models 105,000 to 132,000 B.T.U.	7 Models 105,000 to 250,000 B.T.U.	3 Models 105,000 to 189,000 B.T.U.		
GAS FLO-WARM	3 Models 85,000 to 140,000 B.T.U.	7 Models 85,000 to 250,000 B.T.U.	1 Model 85,000 B.T.U.		
GASAVR DELUXE FLO-WARM	3 Models 85,000 to 140,000 B.T.U.	7 Models 85,000 to 250,000 B.T.U.			
DUAL-FUEL FLO-WARM	3 Models 85,000 to 140,000 B.T.U.	4 Models 100,000 to 190,000 B.T.U.			
COAL FLO-WARM	9 Models 45,330 to 163,375 B.T.U.	4 Models 102,000 to 275,000 B.T.U.			
AIR CONDITIONING UNITS	10 Models	2 and 3 Ton Water-Cooled in 4 styles. 2 and 3 Ton Air-Cooled (Duct Evaporator Style)			

—108 Different Furnaces  
—5 Distinctive Types  
—8 Different Lines  
—Pipe & Fittings for ANY System  
—Complete Line of Air Conditioning Units



Oil Flo-Warm Hi-Boy

## WILLIAMSON WARM AIR FURNACES

THE WILLIAMSON HEATER CO.  
3551 MADISON ROAD, CINCINNATI 9, OHIO

Gentlemen:

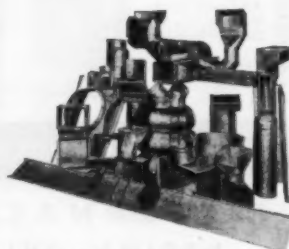
Yes, rush me details on the complete WILLIAMSON Line.

Name \_\_\_\_\_ Title \_\_\_\_\_

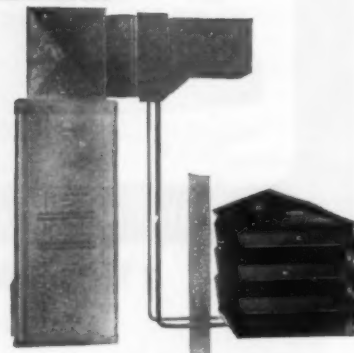
Firm \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



Duct, Pipe and Fittings



Air Conditioning Units (Air Cooled Unit Shown)



**GREATEST ADVANCE IN AIR CLEANING ECONOMY**

**LABORATORY  
TESTS PROVE**  
LOWEST OPERATION AND  
MAINTENANCE COST PER LB.  
OF AIRBORNE DIRT  
REMOVED

*New All Aluminum*

**Evans**

*Lifelong*  
**AIR FILTERS**

EVANS HIGH CAPACITY PRECISION AIR FILTERS have set a new standard in air cleaning. Actual installation performance is so superior it has amazed engineers on every application. Here are some of the secrets of this performance.

• **76,060 AIR SCOOPS (IN 20" x 20" x 2" SIZE)**

An exclusive Evans feature that creates higher turbulence . . . greatest air travel . . . air is forced to pass over a tortuous path of 1.24 miles of precision stamped talon like edges . . . up to 3.5 times filter depth.

• **LARGE FRONT FILTER OPENINGS**

Provide low resistance storage capacity for fibers contained in normal airborne dust.

• **CLEANED WITH HOSE IN MINUTES**

• **MERCHANDISING POLICY GUARANTEES  
TERRITORY PROTECTION**

Adds profits — sales — gives new greater customer satisfaction.

If you are responsible for specification, installation or sales of filters, by all means take action. Get the Complete Evans story now.

**WRITE or Call Today**

THE GEORGE EVANS CORPORATION, MOLINE, ILLINOIS

GENTLEMEN: Please send me: ☐ Descriptive Literature

☐ Merchandising Policy ☐ Price Lists

I WANT TO LEARN HOW TO MAKE MORE MONEY OUT OF THE FILTER BUSINESS.

NAME .....

ADDRESS .....

CITY ..... STATE .....

These precision stamped filter openings make possible EVANS PRECISION AIR CLEANING.

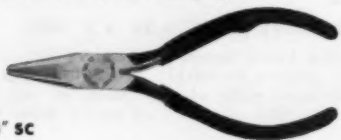
# INDUSTRIAL PLIERS by CRESCENT

**INDUSTRIAL PLANTS** everywhere, especially in the Electronics field, will save in production time and tool cost with these new Crescent Pliers. The "SC" type pliers have plastic "CRESTOGRIP" handles — tough and long wearing yet soft and comfortable to the hand. Designed especially for assembly line workers, a light spring be-



**No. 20—5" SC**

FLAT NOSE PLIER with Spring and Crestogrip Handles. Knurled jaws for firm grip.



**No. 22—5" SC**

SHORT CHAIN NOSE PLIER with Spring and Crestogrip Handles. For fine work.



**No. 942—4" SC**

DIAGONAL CUTTING PLIER with Spring and Crestogrip Handles. Also made in 5 in. (942—5" SC) and 6 in. (942—6" SC) sizes. Keen, long lasting cutting edges.



**No. 1033—6" SC**

LONG CHAIN NOSE PLIER with Spring and Crestogrip Handles.

tween the handles holds the plier open, ready for action, while a "color key" system quickly identifies the type. All flat nose pliers have red handles; chain nose pliers have green handles, and cutting pliers have orange handles.

"LONG REACH" type pliers have BOX JOINTS of improved design which will never loosen thus insuring smooth, easy action. Crescent electronically-controlled hardening guarantees positive grip and long, useful life.



**No. 1035 — BOX JOINT LONG REACH DUCK BILL PLIER.** Overall length, 8 in. Nose length, 1½ in. Sure grip.



**No. 1036 — BOX JOINT LONG REACH CHAIN NOSE PLIER.** 8 in. long with 1½ in. nose. Forms loops and bends easily.

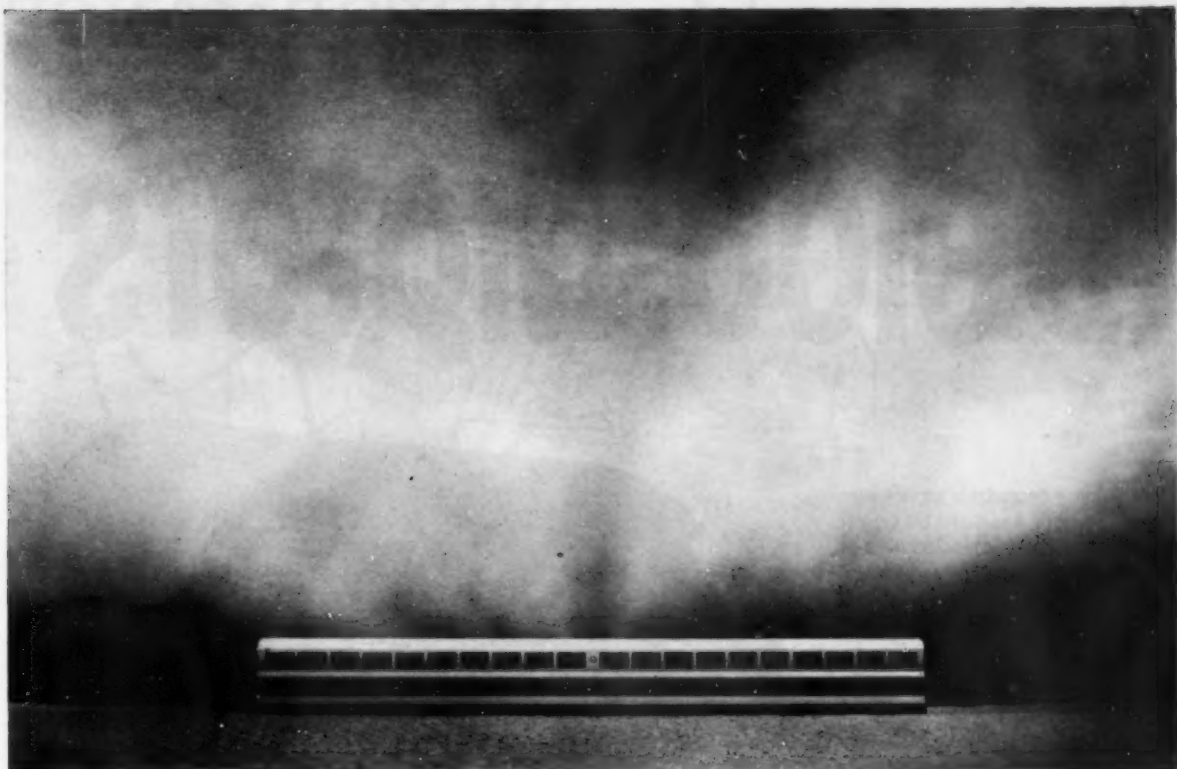
## CRESCENT TOOLS

*Give Wings to Work*

*Sign of the Artisan  
Symbol of Excellence*



Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by **CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK**



## **BETTER — all around** new Lima Extended Baseboard **PERIMETER DIFFUSER** for heating and cooling



Exclusive Lima mechanical damper is built-in—saves time and labor. Spring-loaded, hinged damper runs full length of louver openings. Permits full air shut-off. Set screw adjustment at face simplifies balancing and eliminates quadrant dampers. Face, including built-in mechanical damper, is easily removed.

Immediate delivery in standard four foot and two foot sizes. See your local Lima jobber or write for literature and prices.

Check this new Lima baseboard diffuser for performance and beauty... design and construction... versatility and ease of installation. You'll see why it is better — all around.

*More Comfort Everywhere In The Room.* This new Lima unit spreads a full fan-shaped blanket of air upward and outward, inducing re-circulation of air within the room. Four rows of louvers assure efficient diffusion at proper angles for complete comfort. *Equally efficient for heating and cooling.*

*Better Looking From Every Angle.* Attractive design and smart style lines harmonize beautifully with any baseboard. Lima medium beige lasting finish does not need to be repainted unless desired.

*Easier To Install In New And Old Houses.* Unit is designed so it can be installed against studdings before lath and plaster are applied, leaving little or no protrusion beyond baseboard. In old houses, unit can be butted up against baseboard or wall.



Special joining connector permits the use of any multiples required for continuous installations as shown above.

sold exclusively through heating wholesalers and manufacturers



**Lima**

register company

LIMA, OHIO

# Engineered for PERFORMANCE

# Delco Motors

Longer, more dependable service wins more customers. And that is the biggest reason why leading manufacturers of heating and ventilating equipment choose Delco motors for oil burners and blowers . . . why smart dealers replace with Delco.

Delco selects materials carefully and builds its motors with painstaking attention to every detail. Delco motors have precise dynamic balance . . . special features such as uniflow pressure-cast rotor conductors, steel-backed tin babbitt sleeve bearings, cored oil wells, and varnish-dipped and baked motor windings add extra endurance for long, trouble-free service.

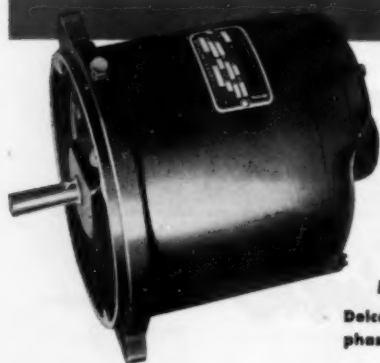
You will find the right motors for your products in the great Delco line. For information on any application, address: Delco Products, Dayton 1, Ohio, or our nearest sales office.



## MOTORS FOR BLOWERS

Delco resilient-mounted motors, split-phase and capacitor-start types, single- and two-speed designs,  $\frac{1}{8}$ - to  $\frac{3}{4}$ -horsepower ratings.

THE BEST RUNNING MATE YOUR PRODUCT CAN HAVE



## DELCO PRODUCTS

Division of General Motors Corporation • Dayton, Ohio



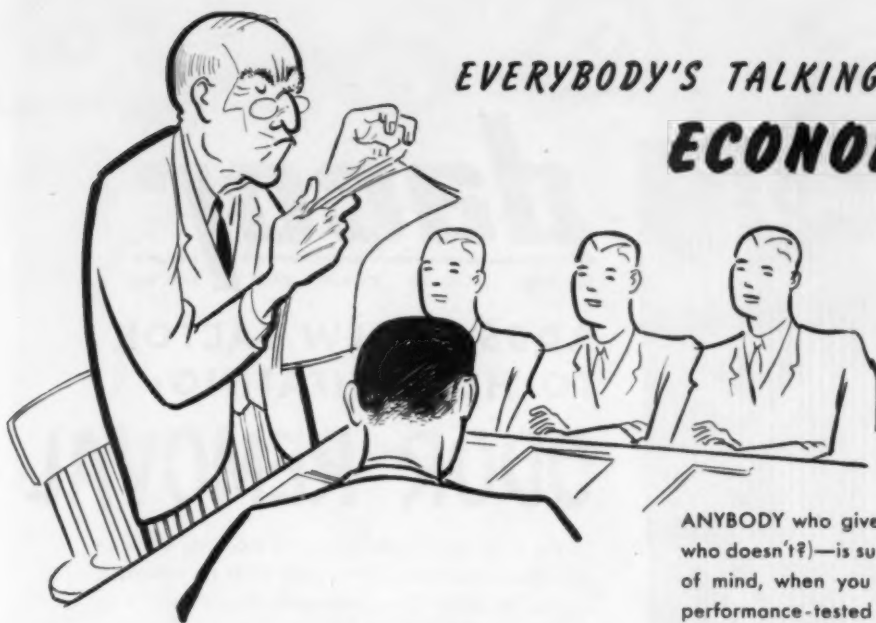
## MOTORS FOR OIL BURNERS

Delco flange-mounted motors, split-phase,  $\frac{1}{8}$ - to  $\frac{3}{4}$ -horsepower ratings.

## SALES OFFICES:

ATLANTA • CHICAGO • CINCINNATI • CLEVELAND  
DALLAS • DETROIT • EVANSVILLE • HARTFORD  
KANSAS CITY • LOS ANGELES • PHILADELPHIA  
ST. LOUIS • SAN FRANCISCO • SYRACUSE





## EVERYBODY'S TALKING ABOUT **ECONOMY\***

# \* **International Economy®**

Here's why  
they'll buy

## **NEW**

**GAS LO-BOYS**

assembled



*The Finest in Home Heating*

*since 1842...*



**INTERNATIONAL**  
Heater Co., Utica 2, N.Y.

ANYBODY who gives a rap about economy (and who doesn't?)—is sure to end up in a buying frame of mind, when you show him the value-packed, performance-tested furnaces in the new International Economy® line—biggest in 112 years!

### Knock on any door...

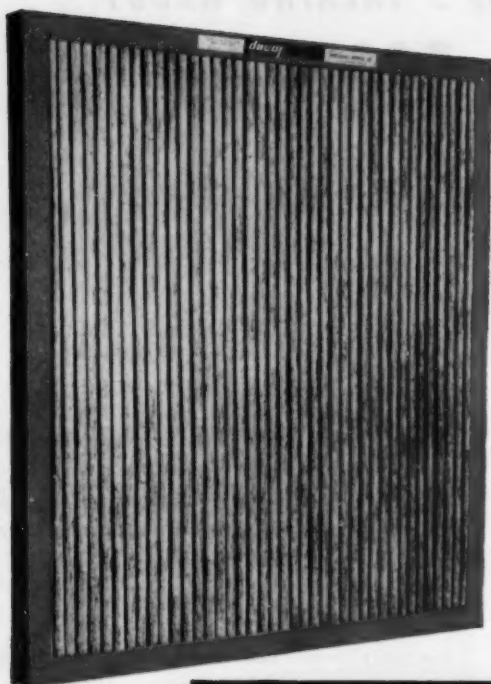
Big house...small house...any house needing heat—Economy opens more doors to you! With Economy, your customer has his pick of fuels (oil, gas, coal)—has more models...types...and features to choose from. But your big "talking" point—the point that sells more customers—is the downright economy of every International furnace. Year in, year out, an International Economy heating system operates for less...and so dependably that it almost never needs "tending" by the customer—or "mending" by you! Your profit's clear.

Interested? Want to talk about it?

See your distributor—or write: Dept. A-21  
International Heater Co., Utica 2, New York.

**Models: GL-80 GL-100 GL-120**

- 10-YEAR WARRANTY on Heating Element and Casing!
- Ratings up to 120,000 Btu. Input.
- Removable Pilot Burner Assembly.
- Handsome Heavy-Gauge Cabinet.
- Easily Convertible to Oil.
- Safety Pilot.
- Meets Supplemental Utility Requirements.
- Completely Assembled and Wired at the Factory—Easier Installation.



pat. pending

# **dacor**

DISPOSABLE ACTIVATED CARBON ODOR REMOVER

## **ADDS A NEW FACTOR TO HOME HEATING: ODOR REMOVAL**

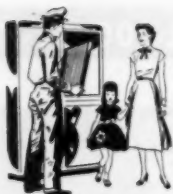
To the traditional three factors of Heating, Circulating and Humidifying, Dacor now adds an important fourth; practical Odor Removal. Dacor installs in any standard forced air furnace, "soaks up" household odors like a sponge! No heating system is really modern without this fourth factor, practical Odor Removal.

**dacor** will do these things...

### **FOR YOU:**



Develop new sales and new service business. It's a real "plus" to offer in new unit sales, can be sold door-to-door and will interest any home-owner who wants odor-free comfort.



Build repeat business. Dacor will last from three months to a year, keeping you in periodic contact with your customers and adding another service which you alone can offer. Dacor is a goodwill builder because it does a real job of odor removal.

### **FOR YOUR CUSTOMER:**



Banish stuffiness in closets, remove cooking aromas, body odors, bathroom smells, pet odors, actually removing these and a host of other "problem" smells common to most households.



Dacor also removes smoke irritants, pollen and dust particles. Smog and other industrial pollutants which come in from the outside, hence cannot be ventilated, are removed by the Dacor. Dacor, in fact, is the only effective method for handling the smog problem.

**BE FIRST TO OFFER *dacor*  
ORDER NOW**

Available from your  
Armstrong Furnace jobber

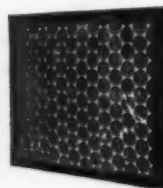
mfg. by the PUR AIR division,

## **BARNEBEY-CHENEY**

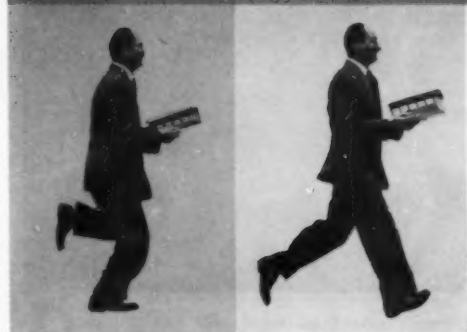
*Company*

CASSADY AT EIGHTH COLUMBUS 19, OHIO

In Canada: BARNEBEY-CHENEY LTD., St. John's, Quebec



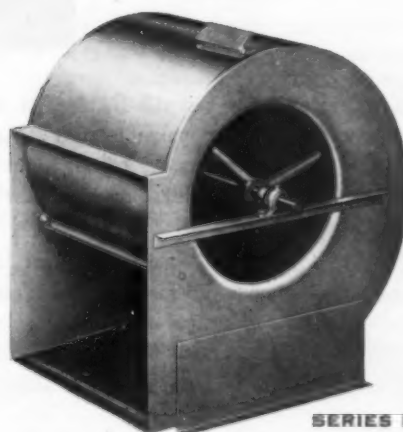
Other side of Dacor has built-in dust filter.



**KEEP THE JOB OUT OF THE RED**

**WITH UTILITY STANDARD DUTY BLOWERS**

*Dealer-contractors  
look to Utility  
to meet the  
highest  
specifications  
and beat  
the lowest bid.*



**SERIES ELEVEN**

*Manufacturers of Heavy and Standard Duty Blowers for Heating, Air Conditioning and Ventilating Installations.*

*Producers of Blowers and Blower Parts for Original Equipment Manufacturers.*

*Let us send you full information on Utility Blowers. Write ...*

## **UTILITY FAN CORPORATION**

911 East 59th Street, Los Angeles 1, California

*A Division of Utility Appliance Corporation*



*Member of National Association of Fan Manufacturers*

**NAFM**

***Proved by  
Actual Test!***

**NEW  
SKIL Shear  
model 231  
outperforms  
all others!**



Yes, in every cutting test the NEW SKIL SHEAR Model 231 tops other makes by far! In cutting-time on the straightaway, in cutting right or left hand circles, in handling ease on every test job... SKIL Shear beats them all!

On a 25" trial cut of 12 gauge metal, SKIL Shear averaged 9.2 seconds. Two other well-known makes required 12 and 15.3 seconds. On right and left hand circles, SKIL cut faster and tighter.

Reasons? A more powerful motor! Scientifically-

designed cutting blades! Exclusive rear contour-grip handle! All combine to make SKIL Shear the leader in the metal cutting field!

The new SKIL Shear Model 231 is ideal for hot rolled steel up to 12 gauge; harder or softer metals in proportion. Cuts circles of 1½" radius, either direction. Unusually lightweight... wonderfully well-balanced... bound to be the favorite with every metal man in your shop! Equipment includes extra set of blades, wrenches, removable side handle.

**FREE!**

Mail the Coupon for a Demonstration and a FREE Trial of the SKIL SHEAR Model 231! See How Much Faster, Easier-Handling this New SKIL Shear is on your Toughest Cutting Job!

**Contact Your SKIL Distributor  
—or Your Nearby Factory Branch  
—for Complete Information.**

**Mail this coupon!**



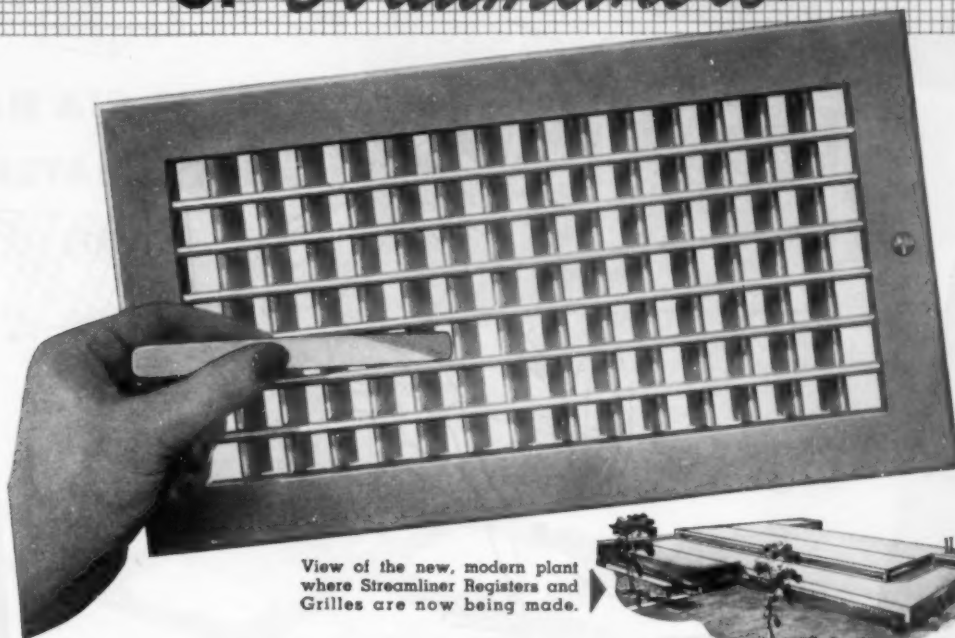
SKIL Corporation, Dept. AA-94  
5033 Elston Avenue, Chicago 30, Illinois

- ☐ I would like a demonstration and free trial  
☐ Please send literature on SKIL tools

Name \_\_\_\_\_  
Company \_\_\_\_\_  
Street \_\_\_\_\_  
City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_



# *Auer* streamlines production... of "Streamliners"



View of the new, modern plant where Streamliner Registers and Grilles are now being made.

Now, in answer to increasing demand, The Auer Register Company has expanded its production capacity for the famous Streamliner Registers and Grilles. New manufacturing facilities and equipment assure increased production and faster delivery.

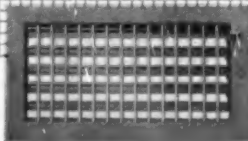
Streamliner Registers and Grilles, for air-conditioning systems, feature expert engineering and fine craftsmanship. They are made to the most exacting tolerances under rigid quality control.

Every Auer register is carefully inspected at each step in its manufacture. A final inspection before shipment guarantees perfect fit and operation when installed.

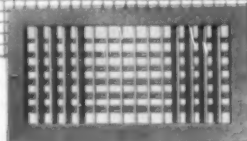
The Streamliner series includes models with single banks of adjustable bars, vertical or horizontal, also with a double bank of bars vertical in front and horizontal in back (or the reverse). Each beveled bar is pivoted at each end in the frame and can be easily adjusted to any desired angle by use of an adjusting tool as illustrated above.



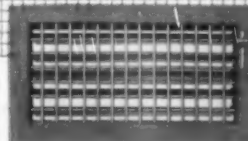
No. 1005 V. Grille only, with single bank of adjustable bars.



No. 1005 V-HML. Register with single bank of vertical bars, multi-louvre back blades.



No. 1205 VH. Double-deflection grille, with 2 banks of bars, front vertical, rear horizontal.



No. 1205 VH-HML. Register with double bank of adjustable bars and multi-louvre back blades.



For complete information on Streamliner Registers and Grilles, write to:

**THE AUER REGISTER COMPANY**

**6602 CLEMENT AVENUE • CLEVELAND 5, OHIO**

is something  
**ALWAYS**  
missing?

(to cut your profit)



...then switch to the one line that meets every selling need

**\*EXAMPLE No. 5:** Local distributor warehousing and service are other advantages you enjoy when you handle the Bryant line. Your Bryant Distributor is equipped to help you on sales calls . . . to offer technical assistance . . . to co-operate in local promotion . . . to promptly supply the equipment or parts you may need for any job. He is as near as your telephone. And his services are backed by competent factory district representatives, factory product specialists and traveling factory sales-training and service teams.

It will pay you to call your nearby Bryant Distributor today.

**Bryant Heater Div., Affiliated Gas Equipment, Inc., 17825 St. Clair Ave., Cleveland 10, Ohio**

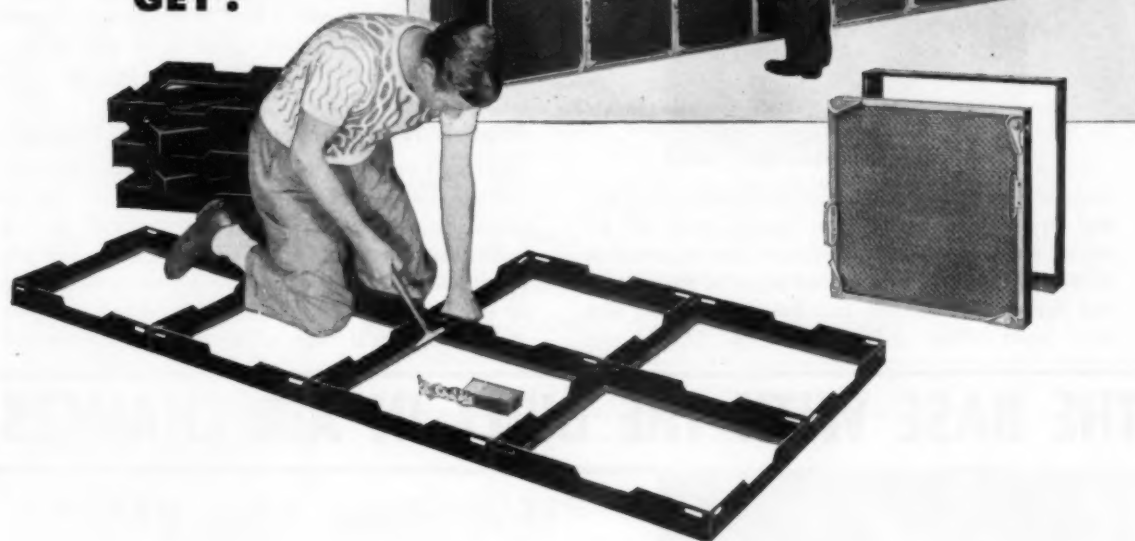
**bryant**  
HEATING AIR CONDITIONING  
WATER HEATING

1. The most complete line in the industry
2. Quality products—Competitively priced
3. Established name—Good customer acceptance
4. Broad, attractive profit margins
- \* 5. Local Distributor warehousing and service
6. Factory district representatives and traveling sales training and service teams



HOW  
**SIMPLE**

**CAN AIR FILTER  
INSTALLATION  
GET?**



**A Hammer and a Dolly Are The Only Tools You Need**

**To Install a Bank of AAF High Velocity HV UNITS!**

**J**UST lay unit frames on a level surface, line up tiers and rivet together. Then fit bank to opening, lock filters in place and you're in business! Space-saving "V" arrangements can be installed just as simply, riveting frames to angle uprights.

Ease of installation is just *part* of the HV story. 4½ miles of woven wire media in exclu-

sive pyramid pocket design means greater cleaning efficiency per unit. Two HV's will do the work of three standard units—saving you space *and dollars!*

AAF HV filters, in standard sizes, are available for immediate delivery. Get complete product information from your local AAF representative or write direct for Bulletin No. 203.



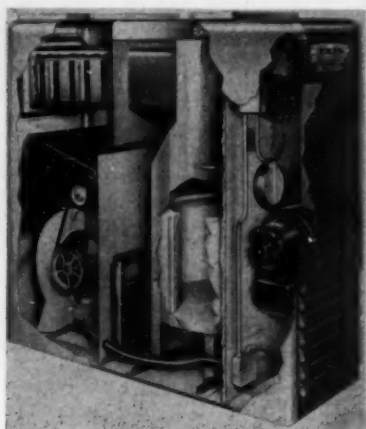
**American Air Filter**  
COMPANY, INC.

American Air Filter of Canada, Ltd., Montreal, P. Q. • 355 Central Avenue, Louisville 8, Kentucky

## equipment developments (From page 45)

### Gas and Oil Fired Lowboy Furnaces

"DELUXE" LOWBOY furnaces for gas and oil, with a new octagonal heat exchanger design — The Heil Co., 3000 W. Montana St., Milwaukee 1. Other fea-



tures include matched and separated plenum openings and free floating fan division panels. Series AF includes three winter air conditioners for oil, rated at 95,200, 112,000 and 123,000 Btu per hr at the bonnet; and Series AFG includes four gas fired models with AGA input ratings of 80,000, 100,000, 125,000 and

150,000 Btu per hr. The lowboys require a minimum of floor space, are shipped factory assembled and wired and are readily convertible from one fuel to the other, the company states.

### Air Conditioning Unit

MODEL SAC-2 air conditioning unit designed for small and average size homes and offered for one or two zone cooling — Sunwarm, Inc., P. O. Box 263, Kingsport, Tenn. It uses no water and utilizes "Freon-12" as the refrigerant. There is a built-in safety control system. The zone selection control, available as an extra feature, divides the home into a living zone and a sleeping zone, a switch being flipped to cool either one. This effects a reduction in operating cost, the company states. There is a washable, permanent filter. Units are available with a built-in return duct thermostat. The entire refrigerant circuit slides out for servicing. The units are 20 × 30 × 36 in. in size.

### Water Trap for Fuel Storage Tanks

MODEL 90 CAST IRON water trap designed for use with fuel oil storage tanks — General Filters, Inc., 43800 Grand River Ave., Novi, Mich. It features an integral baffle, interchangeable inlet and outlet, and a removable drain plug. Designed to fit any style tank (bottom or side outlet), it may be installed between the tank and filter where it traps moisture and scale contained

## THE BASE WITH THE BUILT IN AIR CHANGES!



Patent Pending

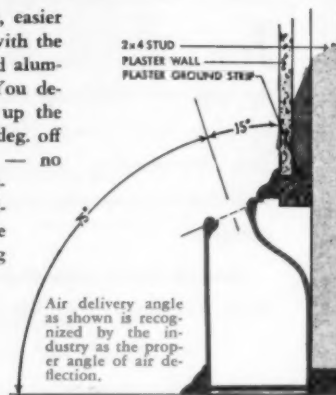
"Tempering Aire Base" is supplied packaged for "on the job" use in 3', 4', 6', 8' and 10' lengths with any of the 5 "Magic Ribbon Diffuser" openings. The simplest installation procedure yet developed; no screws, nails or springs — even in cement slab construction.

Extruded for us by the  
Aluminum Co. of America

WRITE FOR DETAILS

## "TEMPERING AIRE BASE" installs for less!

Now you can do the job quicker, easier and better — for less money — with the only variable air delivery extruded aluminum baseboard on the market. You deliver the air at the right angle up the wall, 75 deg. off the floor and 15 deg. off the wall. No blowing curtains — no streaked walls — no cracking plaster. You can vary the outlet volume under the windows for more heat in winter and more cooling in summer.



**THE HAYES PRODUCTS COMPANY**  
P.O. BOX 202      PORTSMOUTH, VIRGINIA  
Sales Office: P.O. Box 7195, Richmond 21, Va.



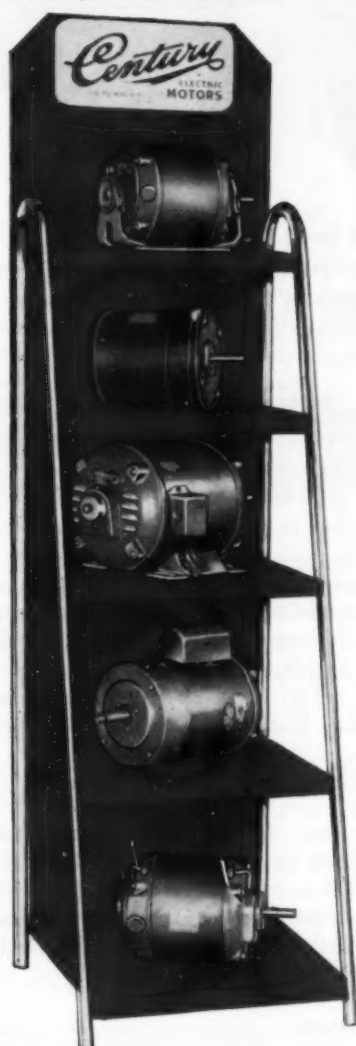
Now from

**Century**

## TWO EASY WAYS TO GET YOUR SHARE OF PROFITABLE MOTOR REPLACEMENT BUSINESS

SELL MOTORS ON SIGHT  
WITH THIS

Century Silent Salesman



Take advantage of the BIG, constantly growing demand for replacement motors with these and other motors from the Century Line.

### MAINTAIN YOUR OWN MODEST STOCK OF Century MOTORS FOR RESALE

- Most often, when folks need a replacement motor, they need it QUICK. You can fill that need—and gain their loyalty—by selling them top quality motors from Century's Complete Line.
- A stock of Century Motors prepares you for profitable replacement business with most makes of compressors, oil burners, blowers, unit heaters, pumps, fans, appliances, and scores of other motor-driven products.
- Free, with your order for only ten Century Motors, you get the attractive red and chrome metal display stand shown here. It identifies you as the man to see for replacement motors. You'll show more motors, sell more motors with this display, in just a few square feet of space. Limit of one display stand per customer.

### WORK CLOSELY WITH YOUR COOPERATIVE Century SERVICE STATION

- Century's network of service stations is nation-wide. There's one in your vicinity—ready to give you delivery on practically any Century Motor your customers might need.
- Every Century Service Station is staffed by men whose skill you can use to solve your motor service problems . . . men who can help you get more profitable motor replacement business.

**CENTURY ELECTRIC COMPANY** St. Louis 3, Missouri  
Offices and Stock Points in Principal Cities

**GET ALL THE DETAILS  
of the CENTURY  
Motor Selling Plan**

**...MAIL THIS COUPON TODAY!**



#### CENTURY ELECTRIC COMPANY

1806 Pine Street, St. Louis 3, Missouri

I want all the facts about Century's motor replacement selling plan.

Name.....

Company.....

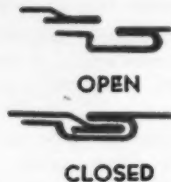
Address.....

City..... Zone..... State.....

# Spee-D-Lok FURNACE PIPE AND WALL STACK INSTALLATIONS

Neater • Faster • Easier

*One Piece*



**COMPLETE  
LINE OF  
STANDARDIZED  
GALVANIZED  
FITTINGS**



Slip the tongue in the groove till it snaps! It's locked and ready for use. No tools or malleting. Cuts without damage to locking feature. Furnace pipe stays round — wall stack and duct remain square. Save time, materials and money. Shipped in handy cartons. Superior color gauge system marks every gauge for quick, easy identity and fast handling in warehousing. Write for color chart.



See your wholesaler.  
Write for our  
**new CATALOG.**

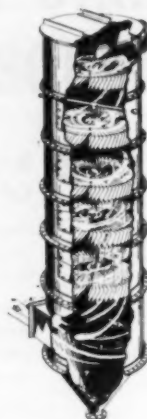
**SUPERIOR METAL FABRICATING  
NILES, OHIO**

*Company*

## equipment developments

(Continued)

in the oil. Tank legs should be approximately 12 in. or longer on bottom outlet tanks for sufficient water trap clearance. It can be connected to the bottom inlet by a one piece extension tank valve. Either pipe opening at the top may be used as the trap inlet.



Above: Water Trap

Left: Collector

### Centrifugal Dust Collector

TYPE CW-1 CENTRIFUGAL wet dust collector for those dust control problems involving high temperature or moisture; corrosive, highly abrasive or obnoxious dusts; explosive or combustible dusts; or combinations of these — Pangborn Corp., 560 Pangborn Blvd., Hagerstown, Md. In the collector, air flows counter current to water flow. Of tower type construction, the unit is made up of multiple wet vane sections and a final water entrainment vane section. Its diameter varies in proportion to the air volume handled and the number of wet vane sections is governed by application requirements. The water supply enters above the top vane section; the air enters through the lower tangential inlet. Water and dust are discharged as sludge from the lower cone and the clean air from the air outlet at the top. After clarification in settling tanks, the water may be recirculated.

### Roof Jack

RUST-RESISTANT steel roof jack designed for installation on composition roofs — Acme Roof Jacket Co., 317 Washington Ave. S., Minneapolis. It is adjustable for any pitch roof from 3 to 17 in. per ft. Flats should be ordered for flat roofs. The jacks are available for use on all standard types and sizes of pipe.

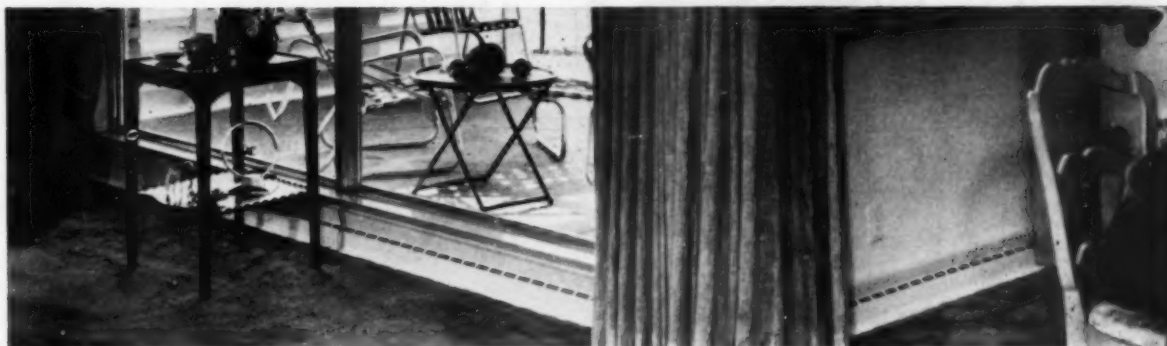
### Heat Reclaimer

UNIT FOR RECLAIMING heat which might be lost up the chimney, utilizing it for heating finished basements, attics, garages, etc. — Hoskinson Free Heater Inc., 248-47 Jamaica Ave., Bellrose, L. I. It is installed in the smokestack of coal, oil and gas fired heating sys-

**MOST OF YOUR  
CUSTOMERS CAN AFFORD . . .**

**Thermo-Base**  
BASEBOARD - HEATING - COOLING

**America's most imitated heating and cooling system!**



**ONLY THERMO-BASE takes the forced air "feel" OUT of the forced air system!**

**DON'T BE MISLED . . .** all baseboard diffusers are **not** alike. Some are too small . . . some have uneven distribution. Only Thermo-Base assures better results by **completely** blanketing outside wall or window surfaces—distributing air evenly and gently throughout its **entire** length.

It takes only a few minutes to install an 8, 5, or 3 foot Thermo-Base unit in new or old construction. Units can be easily combined where continuous coverage is desired. No roughing-in necessary.

Thermo-Base now costs a dollar a foot or less (in zone 1) for the same high quality and proven performance.

**ALL  
OF YOUR CUSTOMERS  
CAN AFFORD . . .**

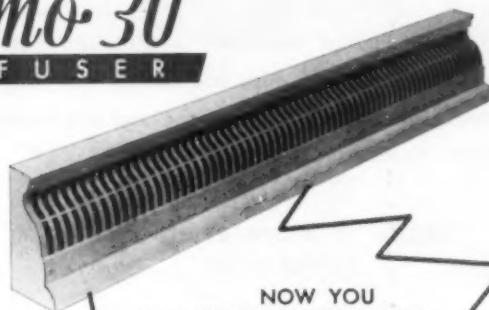
**Thermo "30"**  
DIFFUSER

- **HIGHER CAPACITY —**  
up to 12,000 B.T.U.
- **MORE FREE AREA —**  
over 37 square inches
- **EASIER TO INSTALL THAN ANY  
OTHER BASEBOARD DIFFUSER!**

You can now be the low bidder **without sacrificing profit** — by quoting Thermo "30" diffuser on your highly competitive jobs.

**EXTRA PROFIT!**

The addition of Thermo "30" diffuser to the Thermo-Base line will enable you to get **all of your baseboard requirements** from **ONE SOURCE** — Simplified ordering, delivery and inventory — all add up to extra profit for you!



**NOW YOU  
CAN THROW AWAY YOUR  
REGISTERS! HERE'S A UNIT  
THAT CAN BE USED EITHER AS  
A WARM OR COOL AIR DIFFUSER  
OR AS A RETURN AIR REGISTER.**

**. . . AT ONLY \$2.00 EACH**  
(in zone 1)

**IT'S AMERICA'S LOWEST  
PRICED BASEBOARD DIFFUSER!**

**SEND TODAY for new FREE LITERATURE!**

**GERWIN INDUSTRIES, INC., MICHIGAN CITY, INDIANA**



**Count on  
easier, quicker  
FALL INSTALLATIONS  
with OHIO VALLEY  
Furnace Pipe and Fittings**

During the busy fall months — when heating systems are being installed or remodeled — precision-made, standardized Ohio Valley pipe and fittings will make more money for you. They save time — and that means extra profit. Order your fall stock NOW.

**CARRIED IN STOCK BY LEADING  
WHOLESALEERS**

*Write for our Catalog.*



**OHIO VALLEY HARDWARE CO., Inc.**  
MANUFACTURING DIVISION, EVANSVILLE, IND.

**equipment developments** (Continued)

tems. The hot gases pass through the unit and around the tubes. A blower forces fresh air through the hermetically sealed tube centers. The copper induction brazed steel heat exchanger core is designed to withstand 2000 F. Should the core clog because of improper flame in the heating plant, the bypass will automatically pass the smoke up the chimney. An output of 300 to 500 F at 120 cfm provides 125 to 160 sq ft of radiation from the unit, the company states.

**Residential Cooling Units**

MODELS C-200 (2 ton) and C-300 (3 ton) "Weather-Aire" residential cooling units which employ suction cooling with refrigerant vapor for the motor compartment — Richmond Radiator Co., Affiliate of Reynolds Metals Co., Box 111, Metuchen, N. J. All units are tested under ASRE conditions before delivery, a com-



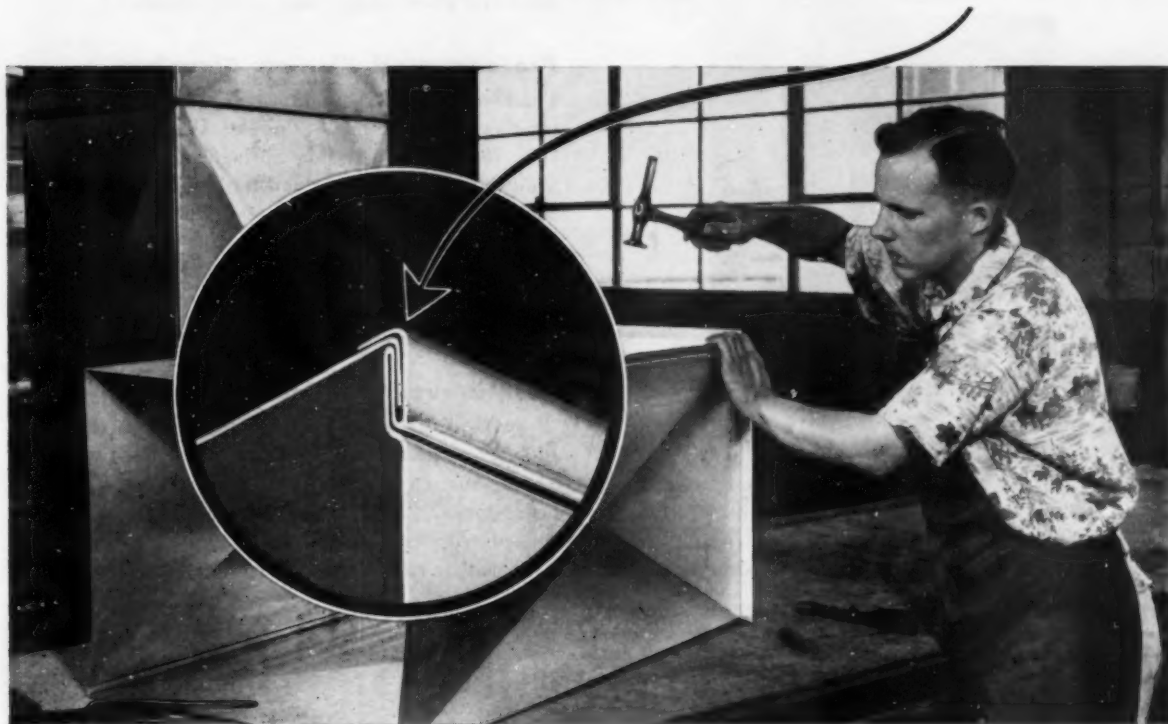
plete chart being made and shipped with units to show that they meet with capacity and power consumption requirements, the company states. Compressor and motor are hermetically sealed and the unit is internally mounted on floating springs. All parts exposed to moisture are primed with a 5000 hr salt spray paint. Acoustical insulation and an aluminum-faced vinyl plastic coated material for insulation and moisture protection are used. Filters are of the throw-away type.

**Oil Fired Furnace**

COMPLETE NEW line of oil fired furnaces consisting of lowboys with and without extended jackets, highboys and suspended furnaces — American Ideal-Aire Corp., P.O. Box 470, Mineola, N. Y. Lowboy capacities range from 85,000 to 500,000 Btu output; highboy capacities, from 75,000 to 210,000 Btu output. Filters for highboys can be located on the right side, left side or the bottom. (Large sizes have filters on both sides.) Suspended units range in capacity from 85,000 to 500,000 Btu output.



# Kaiser Aluminum utility sheet takes perfect Pittsburgh lock seam!



**THE DESIRABLE** forming qualities and great strength of Kaiser Aluminum Utility Sheet mean that it will take and hold a perfect Pittsburgh Lock Seam—and by the same methods employed for galvanized.

**And your metal cost is lower** because the equivalent weight of aluminum covers three times as much area as galvanized. You save metal and fabrication time because aluminum's efficiency permits substantially smaller ducts. No waste from edge shearing or trimming.

**Saves 10 to 12 per cent** in installed cost because lightweight aluminum permits faster handling and erection, lighter supports. No insulation is needed.

**Delivers much more heat** than bare galvanized or asbestos paper-covered ducts. And Kaiser Aluminum

Utility Sheet will stand up for years, with no red rusting, no coatings to crack or peel.

For complete information, contact the Kaiser Aluminum sales office listed in your telephone directory, or one of our distributors. Kaiser Aluminum & Chemical Sales, Inc. *General Sales Office*, Palmolive Bldg., Chicago 11, Ill.; *Executive Office*, Kaiser Bldg., Oakland 12, California.

## **Kaiser Aluminum** **UTILITY SHEET**

The low cost, efficient metal for sheet metal work

**Important information about gauge sizes!** The Brown & Sharpe gauge used for aluminum is two numbers *higher* than the Standard gauge used for galvanized. Thus, for example, 18 ga. aluminum and 20 ga. galvanized are the same thickness (.040").

**Send coupon for free folder.** Helps you take full advantage of aluminum's unique combination of properties. Availability charts on Kaiser Aluminum Utility Sheet in both flattened and coiled sheets, including thicknesses, weights, etc. Also contains weight and coverage comparisons for aluminum and galvanized. Mail coupon today!

Kaiser Aluminum & Chemical Sales, Inc.  
5972 Kaiser Building, Oakland 12, California

Please send \_\_\_\_\_ free copies of folder entitled  
"Kaiser Aluminum Utility Sheet."

Name \_\_\_\_\_

Address \_\_\_\_\_

Company \_\_\_\_\_

City and State \_\_\_\_\_

### Drive for Power Squaring Shears

COMPLETELY REDESIGNED drive unit for complete line of power squaring shears — Wysong and Miles Co., 625 Fulton St., Greensboro, N. C. The unit is fully enclosed and runs in oil; a shorter pinion shaft is



used. The bed belts are placed on the outside of the end frames for easier accessibility and blade setting. Pulling out a hand knob located on the drive unit sets the shear for positive single stroke shearing.

### Lock Seam Hammer Kit

"CALDWELL" HAMMER KIT designed to save time in sealing Pittsburgh lock seams — Burgess Thomas Co., 17 James St., Bloomfield, N. J. The kit is also used for chipping, drilling, gouging, small riveting, cutting, scaling, caulking, etc. It includes a new model pressure regulator, air hose (25 ft long), lock seam flattener and guide, coupler and sealing hammer.

### Prefabricated Plenum Chamber

PRE-FORMED PLENUM CHAMBER featuring press-together construction — Duc-Pac Div., Swett Bros., Inc., 78 Island Pond Rd., Springfield 8, Mass. It is available in various sizes and is shipped unassembled and boxed flat. The plenums are furnished with S locks for neater appearing connection to the furnace. No hammering is required and all cut edges are contained within the inner lock to prevent rusting, the company states.

### Rust Preventive Coating

"ZINKTRON" COATING designed to prevent rust on gutters, corrugated roofing, other metal building materials, and any iron or steel surfaces — Constad Laboratories, 214 W. 29th St., New York 1. It is applied with paint brush or spray gun. When the compound is spread over rusted surfaces (after loose

## AN UNBEATABLE COMBINATION



**General**  
**FUEL OIL FILTERS**  
Preferred By More  
Than a Million Users

**Seasonal**  
**CARTRIDGE**  
**CHANGES**



**Pre-Season**  
**CLEANING**  
with **CLEAN RIGHT**  
**SOOT REMOVER**

A major reason why General FUEL OIL FILTERS are profitable business is that fuel oil users regularly need additional equipment and services from the heating contractor: seasonal cartridge replacements, heating system cleaning service, burner maintenance, and so on. Performing all of these various jobs is an important and profitable part of the contractor's business.

**Increase Your Profits as Much**  
**as \$15 Per Hour!**

For example, AT LEAST ONCE A YEAR, every cartridge you sell should be replaced with a genuine General element — a job that takes about four minutes and earns you at least \$1 profit (or a rate of \$15 per hour).

Pre-season cleaning of customers' heating systems is equally important. The entire job can usually be done in a few minutes with Clean Right Soot Remover — often during the same service call in which you overhaul the burner and replace the filter cartridge. When all of these needed services are combined, overhead per call goes down and profits go up!

General Filters are approved by  
Underwriters' Laboratories

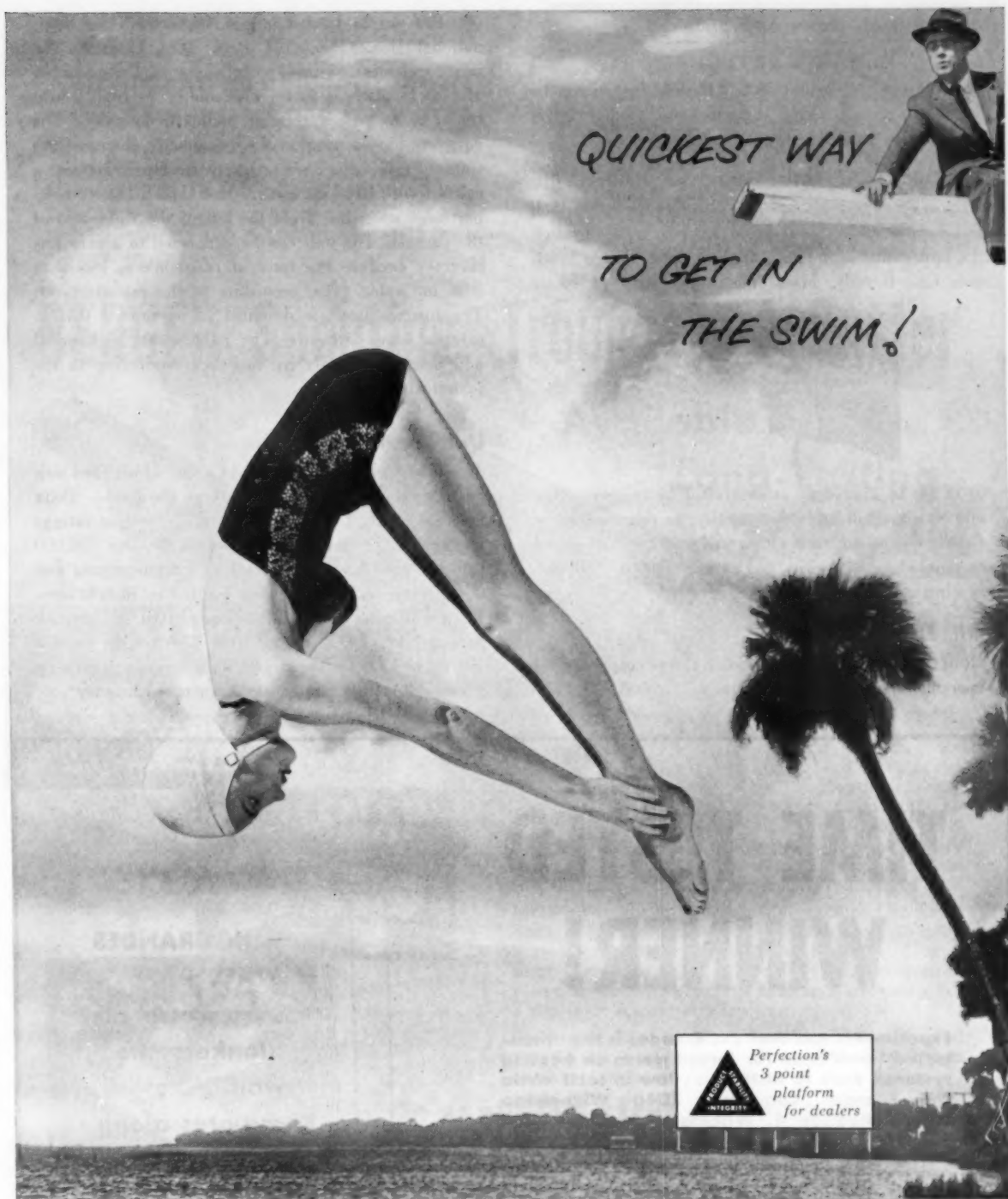


**GET THE HABIT!**  
Replace Every General  
Cartridge You Sell At  
Least Once a Year.

**GENERAL FILTERS, INC.**

43800 GRAND RIVER AVENUE • NOVI, MICHIGAN

CANADIAN GENERAL FILTERS, LTD. • 39 CROCKFORD BLVD. • (SCARBORO) TORONTO, CANADA



\*Pat. Pending

Jumping into the furnace market: feet first sometimes makes a big "splash." But it takes real championship performance to stay in the swim.

Perfection can help you keep your head *well* above water with:

1. Regulaire®... the only *real* exclusive in the heating business.
2. "On-the-spot" sales assistance by experienced Perfection men.
3. Protection from cut-rate or factory competition in your territory.

Companion air conditioning unit helps you sell a complete "comfort" package.

Write us, Perfection Stove Co., 7534-E Platt Ave., Cleveland 4, Ohio.

YOUR HOME DESERVES  
**Perfection**



PORTABLE  
HEATERS



FURNACES • HOME HEATERS • RANGES • AIR CONDITIONERS • WATER HEATERS

### equipment developments

scale has been removed), a galvanic action takes place through the rust; and if the coating should be scratched on un-rusted surfaces, rust cannot travel underneath, according to the company.

#### Electric Soldering Gun

"SCOTTY" SELF-FEEDING electric soldering gun which feeds spool solder (acid, rosin or plain type) through the upper tube to the hot soldering tip — Scotco Products Co., Beverly, Mass. The solder strip (1/16 or



3/32 in. in diameter) is controlled by trigger action allowing a small or large quantity, as required, to be fed. The gun is offered with a wedge shape, half round or pointed soldering tip, and with 50, 100 or 150 watt heating elements.

#### Oil Fired Furnaces

MODELS OL-336E and OL-448E large capacity oil burning furnaces with capacities of 336,000 and 448,

000 Btu per hr bonnet output, respectively — International Heater Co., 101 Park Ave., Utica 2. The heating element, shipped with the combustion chamber already in place, is 27 in. wide and 66 in. high, allowing it to be passed through standard doorways. The complete unit is compact for its capacity, the company states. Features include a heavy steel pan bottom, a cabinet with slip-lock construction, and a blower compartment reversible from the left to the right side of the furnace. The unit can be connected to a very low chimney because the internal resistance is less than 0.02 in. water gage, according to the manufacturer. The furnace itself is designed to operate at 0.4 in. external static pressure. The models can be handled and assembled easily by two men, according to the manufacturer.

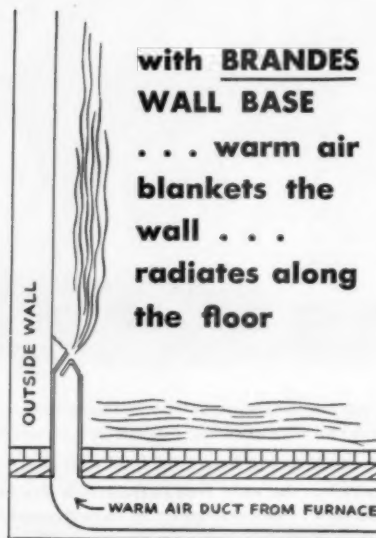
#### Unit Heaters

TEN ADDITIONAL smaller sizes in a line of oil fired unit heaters using conventional gun type burners — Delta Heating Corp., 1 Cole St., Trenton 8. Output ratings of the smaller units range from 112,000 to 196,000 Btu per hr. A variety of outlet air temperatures and noise levels is available for particular installations. Heaters operate with draft as low as 0.01 in., and the propeller fan will throw air from 37 ft for the smaller size up to 75 ft for the largest in the line, the company states. All sizes are rated at 80 per cent efficiency.

## TIME TESTED WINNER!

Experiments are over . . . Brandes is the "time-tested" wall base for forced warm air heating systems! Easy to install . . . low in cost! Write The Brandes Company, 2046 Winnebago Street, Madison 4, Wisconsin. You'll be glad you did!

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PATENTED  
**WALL BASE HEATING**





**TONCAN gutters and downspouts  
serve 40 years! Good for more!**

These TONCAN footage products were installed on St. Vincent's Charity Hospital, Cleveland, Ohio, in 1913. They're still in good condition. TONCAN is an alloy iron containing copper and molybdenum. *It resists rust better than any ferrous material in its price class.*



# BERGER Spouting, Trough and Gutter

Available in  
Long-Lasting  
**TONCAN**



Toncan is the Republic sheet metal that's so famous for long service. Berger uses this quality metal to fabricate a complete

line of ready-to-use roof drainage products for you.

Included in the big Berger line is SnapTite Eaves Trough. It's the patented trough that's easy to hang because you simply (1) slip joints together, (2) snap bead edges into place, (3) seal by crimping with pliers. Solder if desired. No tacking is necessary. It's a slip joint section at a lap joint price.

See your jobber for SnapTite Eaves Trough—and for the complete line of Berger Roof Drainage Products made of rust-resistant Toncan.

**REPUBLIC STEEL CORPORATION**

*Berger Manufacturing Division*

1010 Belden Avenue, Canton 5, Ohio

Export Department: Chrysler Building, New York, 17, N. Y.

**Berger Toncan Drainage Products include:** Plain round, round corrugated, and square corrugated conductor pipe; "K" Gutter; SnapTite Eaves Trough; ridge roll; roof valley; flashing; plus fittings, hangers and accessories.

**Berger**  
**ROOF DRAINAGE PRODUCTS**



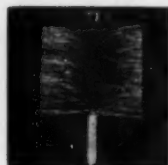
# Schaefer BRUSHES

## For Plumbers . . . Furnace Men . . . Heating Contractors

Performance tested, SCHAEFER Brushes offer longer wear, better service, greater value—with the correct brush for every industrial and domestic use.

### SCHAEFER Flue and Boiler Brushes of SILVER BRITE Rustproof Wire

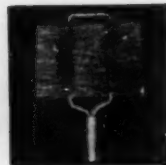
SCHAEFER'S special alloy "Silver Brite" rustproof spring steel wire has been developed for longer wear, more effective cleaning. It offers extra value, extra satisfaction in any brush.



**SCHAEFER Rectangular Flue Brushes**  
No. 8-415—2"x4"x4 1/2"  
No. 8-416—3"x5"x4 1/2"



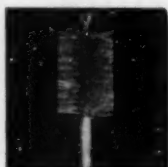
**SCHAEFER Boiler Brushes**  
No. 8-393—1 1/2"x4"x5 1/2"  
No. 8-394—2 1/2"x6"x6 1/2"  
No. 8-395—3 1/2"x6"x6 1/2"



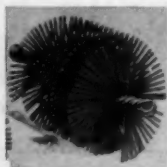
**SCHAEFER Boiler Brushes**  
No. 8-390—1 1/2"x4"x4 1/2"  
No. 8-391—2 1/2"x6"x4 1/2"  
No. 8-392—3 1/2"x6"x4 1/2"



**SCHAEFER Boiler Brushes**  
No. 8-399—2"x4"x6"  
No. 8-400—2 1/2"x4 1/2"x6"  
No. 8-401—3"x5"x6"



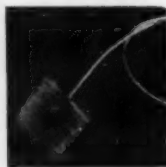
**Single and Double Spiral Flue Brushes**  
No. 8-432—Single Spiral—1" to 4" dia.  
No. 8-433—Double Spiral—1" to 4" dia.  
No. 8-434—For small flues, 1/2" to 1" dia.



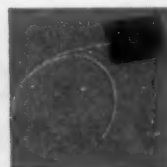
**SCHAEFER Round Flue Brushes of Single Spiral Flat Steel Wire**  
No. 8-430—1" to 4" dia.



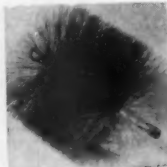
**SCHAEFER Rectangular Flue Brushes of Flat Steel Wire—Spiral**  
No. 8-420—2"x3 1/4"x4"  
No. 8-425—2 1/4"x6 1/4"x7"



**SCHAEFER Furnace Brushes of Silver Brite Rustproof Steel**  
No. 8-442—3"x4"x4 1/2"  
5" with 5 ft. handle.



**SCHAEFER Fibre Furnace Brushes**  
Selected Bassine fibre, flexible wire stem, 4", 5", 6" dia., 48" and 60" handle.  
No. 8-444-445



**SCHAEFER Chimney Cleaning Brushes**  
No. 66—6", 7", 8", 10" and 12" dia. round style of Black Tempered Brush Wire.  
No. 666—6", 7", 8", 10" and 12" dia. oblong style of Flat Tempered Steel Wire.



**SCHAEFER Wire Wheel Brushes**  
Solid Center Type of crimped steel wire.  
No. 276—6" dia. x 1 1/2" face.  
No. 278—8" dia. x 1 1/2" face.  
No. 280—10" dia. x 2" face.



**SCHAEFER Handy Wire Brush**  
No. 810—For roughing, soldering etc. 6" long, tempered steel wire trimmed 1 1/2".



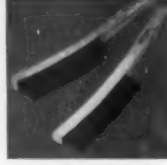
**Tin Handle Acid or Dope Brushes**  
Selected grade bristles in tin ferrule. Width, 3/4", 1 1/2", 2".



**T. W. Flat Acid Brushes**  
Tinner's soldering brush, horsehair filling, 1 1/4" width, 7 1/2" overall. Twisted wire handle.



**Radiator or Condenser Tube Brushes**  
Twisted in wire handle, selected hair or bristle. Wide range of sizes.  
No. 10—3/4" dia. x 2" brush x 6 1/2" overall.  
No. 11—1 1/2" dia. x 3" brush x 5 1/2" overall.



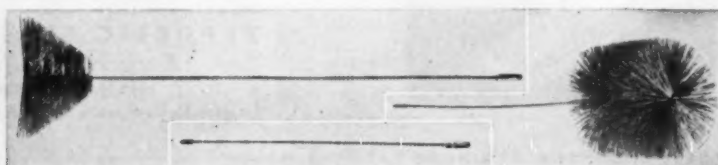
**SCHAEFER Curved Handle Wire Brushes**  
No. 810—Oil-tempered steel wire, trimmed 1 1/4", hardwood block, 14" long. Brush 6", 2, 3 or 4 rows.



**SCHAEFER Shoe Handle Wire Brushes**  
No. 812—Oil tempered rustproof wire, 5" brush, 2, 3, 4 rows. Trim 1 1/4", overall 10".



**SCHAEFER Straight Back Wire Brushes**  
No. 800-11—Oil tempered steel wire. Hardwood block, 7 1/4" x 2 1/4". Wire trim, 1 1/4", 6 x 19 ROWS.



**SCHAEFER Vacuum Cleaner Brushes**  
No. 1005—Bassine Fibre Brush, 10 1/4" dia. tapered to 3" dia. x 6 ft. long—48" handle with threaded nipple at end.  
No. 1000—Bassine Fibre Brush, 10 1/4" dia. brush x 10" long. Handle 39" with threaded nipple at end.

### Wire Flue Brush and Extension Handles

4 ft. Handles with Nipple and Coupling.  
5 ft. Handles with Nipple and Coupling.  
6 ft. Handles with Nipple and Coupling.

Write for SCHAEFER Catalog of flue and furnace brushes, or for information on any special brushes for specific requirements.

## SCHAEFER BRUSH MFG. CO.

117 W. Walker Street Milwaukee 4, Wisconsin

## equipment developments

(Continued)

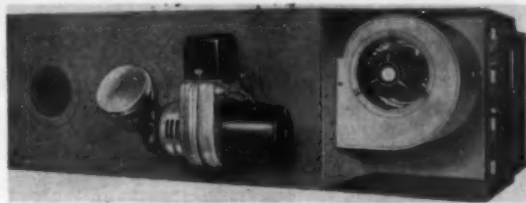
### Year 'Round Air Conditioner

YEAR 'ROUND residential air conditioning unit now available in 2 as well as 3 ton capacity — Frigidaire Div., General Motors Corp., 300 Taylor St., Dayton 1. The unit uses oil or gas. Furnace capacity is 75,000 Btu per hr output with oil, 90,000 Btu per hr input with gas. Summer cooling and dehumidification are provided by automatic electric refrigeration systems. Units are designed to cool and heat new or existing homes of up to six rooms. They are 76 in. high (including plenum), 46 in. wide and 25 in. deep, and are suitable for installation in closet type enclosures, basements or utility rooms.

### Oil Fired Furnace

MODEL 77B forced warm air furnace fired with a gun type oil burner, designed to be low in cost — Delta Heating Corp., 1 Cole St., Trenton 8. It has an output of 77,000 Btu at the bonnet. The unit may be installed as a highboy furnace or laid down on either of its sides as a horizontal furnace, with the warm air outlet on the right or left side. The filter can be installed at sides, rear or bottom and the flue outlet is extended to the front and rear. The unused opening (after chimney outlet is set up) can be used to install the draft

regulator. The heat exchanger is 14 gage steel and the outside casing is 20 gage. The ceramic combustion chamber is pre-cast. A companion counterflow unit,



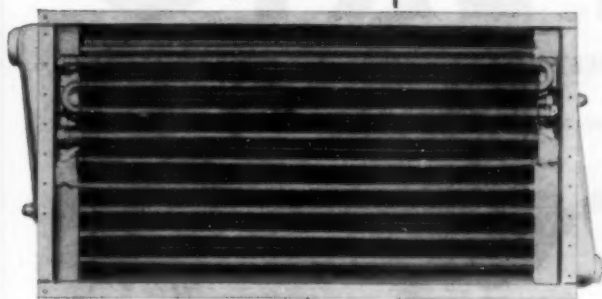
Model 77C, embodies all the features of the other model and can also be used as a horizontal furnace with the warm air outlet right or left, facing the burner.

### Disposable Air Filter

IMPROVED DISPOSABLE air filter using as the filtering medium a specially processed glass fiber designed to avoid disintegrating or splintering — Filtrex Corp., 33-40 127th Pl., Corona, N. Y. Fibers are bonded together so that the filter pack remains firm, eliminating blowthrough, yet allowing the fibers to remain soft and easy to handle, the company states. The filter provides dust arrestance throughout the depth of the medium, according to the manufacturer. The frame is a box construction reinforced with metal corners. The filters are available in all sizes for warm air furnaces, cooling units and other applications.

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Low Maintenance and Servicing Costs . . .**

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Syracuse 1, N. Y.

### Pilot Burner

MODEL H10 non-aerated pilot designed for high flame stability — Milwaukee Gas Specialty Co., P. O. Box 461, Milwaukee 1. It has a low consumption rate (75 to 100 Btu per hr with manufactured gas), the company states. The thermocouple is surrounded by the pilot burner tip so that a small bead of flame continually bathes the thermocouple, generating the elec-



tricity that energizes the safety pilot valve. The pilot is mounted in a horizontal position so that it can be placed in confined spaces. Pilot burner inlet fittings are replaceable. One orifice drilling usually suffices for manufactured, natural or LP gases, according to the manufacturer.

### Oil Burner Ignition Transformer

REPLACEMENT TYPE ignition transformer designed to fit almost any type of domestic oil burner — General Electric Co., Schenectady 5. The choice of three heavy

duty base plates permits adaptation of the transformer to most applications without further modification, reduces dealer inventories and cuts down on installation time, the company states. High voltage bushings are mounted on either the bottom or the end of the unit, and the transformer contains an electromagnetic shield in addition to electrostatic shielding for maximum suppression of radio and TV interference. The unit is designed for continuous or intermittent domestic duty on 60 cycle circuits.

### Furnace Pipe

"MILCOR LOCK-JOINT" furnace pipe now available in 5 ft lengths — Inland Steel Products Co., P. O. Box 393, Milwaukee 1. These lengths are available in 4, 5, 6, 7 and 8 in. sizes and in 28 and 30 gages.

### Pilot Couple

MODEL PC-D miniature pilot couple, an integrally combined pilot burner and thermocouple for use on gas appliances, especially where a minimum of heat generation is desired in the pilot standby period — General Controls Co., 801 Allen Ave., Glendale, Calif. The thermocouple is imbedded in the tip of the burner and produces the electrical current for automatic operation of safety controls. The unit's bead-size flame creates as little as 75 Btu per hr, the company states.

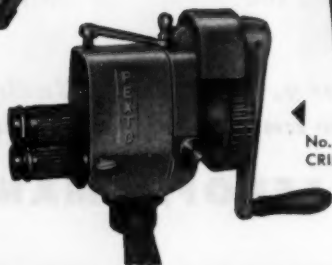
*Make your own PIPE and DUCT with . . .*

# PEXTO

**SHEET METAL WORKING MACHINERY**



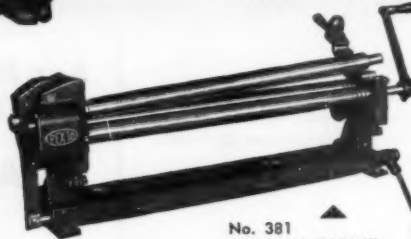
No. 137  
SQUARING SHEAR



No. 0585  
CRIMPER & BEADER



No. 63  
ADJUSTABLE BAR FOLDER



No. 381  
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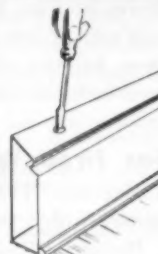
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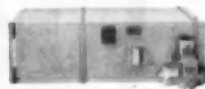
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85,000 Btu Output

Oil-Fired Horizontal or  
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Oil-Fired  
Lowboy  
Model All  
sizes from  
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200,000 Btu  
Output



Oil-Fired  
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Model  
85,000  
Btu  
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Model "F" Pre-Assembled Unit  
Ready for easy installation.  
AGA approved . . . built to  
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Guaranteed five full years!



Model "BH" Packaged Horizontal Unit  
Pre-assembled and wired for fast, economical  
installation! 60,000 to 140,000 Btu input.  
Guaranteed five full years!



# GENERAL Automatic

GENERAL AUTOMATIC PRODUCTS CORP.  
2300 Sinclair Lane • Baltimore 13, Md.

## equipment developments

(Continued)

No primary air is introduced into the pilot couple, precluding the problem of linting, according to the company. The unit is designed for use where extreme draft conditions are not present.

### Year 'Round Air Conditioning Unit

FURNACE-AIR CONDITIONER combination now featuring a pull-out drawer in the bottom of the furnace to hold the air conditioning equipment — Lennox Furnace Co., 200 S. 12th Ave., Marshalltown, Ia. The unit fits into a small hall closet or other small enclosed spaces since it requires only 7.1 sq ft of floor space, the company states. The furnace alone can be installed and the air conditioning equipment placed in the drawer later on. Also, larger capacity air conditioning units can fit into the drawer to replace smaller ones where finishing off of attic rooms or other additional areas increases the cooling requirements.

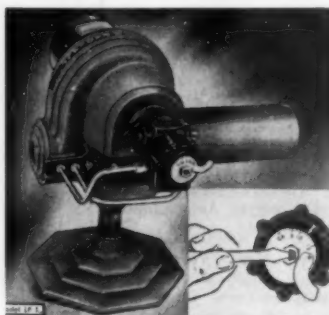
### Gas Fired Winter Air Conditioner

"BUDGETEER" TYPE SV-36-G gas fired winter air conditioner with a capacity of 70,000 Btu per hr input — Richmond Radiator Co., P. O. Box 111, Metuchen, N. J. Designed to be small and compact, with all work-

ing parts easily accessible from the front for servicing, the unit is intended for use in the smaller home. It is fully automatic, equipped with a low speed blower and insulated with heavy, corrugated asbestos with aluminum foil face to prevent heat loss through the casing.

### Automatic Oil Burner

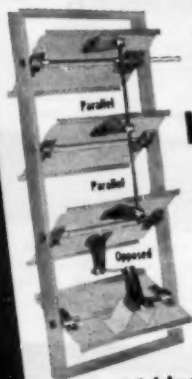
LOW PRESSURE, two stage automatic oil burner featuring a "Dial-Set" meter designed to save fuel — Radiant Utilities Corp., 8817 18th Ave., Brooklyn 14. The



meter permits adjustment of fuel input rate by the use of a screwdriver, the company states. Capacity is 0.4 to 1.5 gph. The unit is equipped with a non-clog air and oil nozzle, according to the manufacturer.

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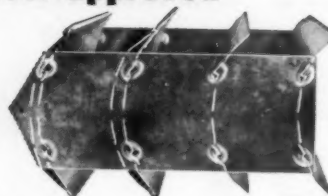


- Swiftest, simplest assembly
- Ideal for light or heavy dampers, 3" blades or wider
- Corrosion-resistant throughout
- Parallel or opposed blade action
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the original, job-tested

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COSTS WITH A BETT-MARR**

**BETT-MARR MODEL 149M**—A lower priced 2-wheel sheet metal band saw with 13½" throat is perfectly adequate for work not requiring maximum throat depth.

**MODEL 24S**—Complete with riser bar insert and 4 sheet metal clamps. Only 61 inches high—compact, fits most any space—depth 44"; width 22", table sizes 20"x22".



MODEL 24S

**BETT-MARR MFG. CO.**

## **THE AMAZING 3-WHEEL BAND SAW** *designed especially for* **FAST, SMOOTH** *stacked sheet metal cutting*

Save costly labor hours—get smoother, accurate cutting of stacked sheet metal with this new Bett-Marr three-wheel band saw. It's big enough to do most any job, small enough to fit most any space, and costs much less than any other comparable power saw.

A Bett-Marr in your shop will pay for itself quickly. Cut your production costs by stacked cutting with a saw that's especially designed for sheet metal cutting.

### **Does BIG! Costs LITTLE!**

**100 to 3000 FPM BLADE SPEEDS**—Quickly adjusted for cutting iron, steel, forgings (100 FPM); stacked aluminum or galvanized sheets, bronze, brass, copper (600 FPM); wood, plastics, stainless steel (3000 FPM) without blade chatter.

**CUTS 50 to 70 STACKED SHEETS**—Up to 15 inches per minute; cutting accuracy is assured by case hardened guides with carbide back-up bearings (adjustable up to ½" blade width).

**PERFECT BLADE CONTROL**—Flanged wheels keep blade in position for smooth radius cuts and perfect straight line cuts. Blade positively will not slip off wheel in operation.

**RUGGED ALL CAST FRAME**—The rugged, all-cast frame gives perfect stability, eliminates blade chatter and assures smooth-cutting performance at all speeds.

**POSITIVE 2-WHEEL CHAIN DRIVE**—Prevents blade slippage. All ballbearings are Neoprene sealed for lifetime operation. Blade and wheels are fully enclosed for maximum safety.

**HOPKINS, MINNESOTA**

## **YOU CAN QUOTE ⅓ LOWER ON FLEXIBLE DUCT CONNECTORS**

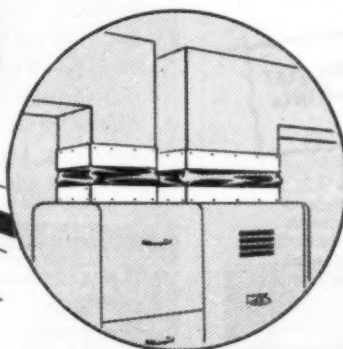
**using Pre-assembled METAL-FAB**

Flexible duct connectors made with Duro Metal-Fab cost less to fabricate, enabling you to quote up to 1/3 lower.

Duro Metal-Fab eliminates the expense and trouble of attaching metal to fabric in your own shop. It is pre-assembled, metal-to-fabric-to-metal, in one continuous piece, featuring the exclusive Double-Loc metal to fabric seam which will not open. In addition, Duro Metal-Fab saves up to 70% in labor.

Metal is 24 gauge finest galvanized steel. Fabric is UL approved canvas, asbestos, or Neoprene Fiberglass. Duro Metal-Fab is packed 100 ft. roll in a handy Dispens-O-Flat carton.

For sample and complete information, write today.



## **DURO-DYNE CORPORATION**

800-B Third Avenue, New Hyde Park, N. Y.



# Use quickdraft

THE DRAFT CREATOR  
that makes all chimneys friendly

ON MODERNIZATION AND  
NEW CONSTRUCTION

for **bigger profits...**  
**warmer friends**

Now you can assure your customers against trouble with condensation on gas-fired heating plants—puffing, sooting and pulsating on oil burning equipment—smoking, puffing and clogging on coal furnaces—common difficulties caused by faulty or inadequate draft.

Short chimneys used in today's one-story and basementless homes do not provide sufficient draft to support full combustion and carry off all troublesome combustion products. Popular outside chimneys require longer to heat up and establish necessary draft. Long runs and elbows in smoke pipes and angles in chimneys cut down draft.

**quickdraft** overcomes these faults immediately and effectively. It creates full draft when firing begins and drives combustion products up the chimney. It operates through the firing period but does not "build up" excessive draft. **quickdraft** places no obstructions in the smoke pipe.

Simple, fool-proof, built for long service, **quickdraft** is reasonably priced . . . consumes no more current than a lamp bulb . . . and **quickdraft** is as easy to install as a length of smoke pipe which it replaces.

To make bigger profits and warmer friends, use **quickdraft** to prevent draft trouble on new construction, and to correct draft trouble on modernization work.

IMMEDIATE DELIVERY  
all standard sizes

Write or  
wire for  
Installation  
Manual  
and details.

Patent  
Pending

**quickdraft**  
COMPANY

DIVISION OF THE HALL'S SAFE COMPANY, INC.

1150-D South Erie Blvd., Hamilton, Ohio

## new literature . . .

### Punch and Shear

BULLETIN 79-B (four pages) describes the No. 5-24 deep throat hand lever punch and shear — Niagara Machine and Tool Works, 683 Northland Ave., Buffalo 11. Action photos demonstrate various punching, notching and shearing operations. Complete specifications are included.

### Year 'Round and Winter Conditioners

FOUR PAGE BROCHURE (form YC-100) presents information on year 'round air conditioning units—The Permaglas Div., A. O. Smith Corp., Kankakee, Ill. Included are detailed descriptions of the features of the units, also capacity and dimensional data. A four page circular covering oil fired winter air conditioners featuring ceramic coated combustion chambers, heat exchangers and baffle plates is also being offered. Engineering data is presented on both lowboy and highboy models.

### Winter Humidification

FOLDER designed for consumer mailings explains the need for winter humidification—The Humidifier Association, 2300 Payne Ave., Cleveland 14. Entitled *How Proper Humidity Protects Your Health and Increases Your Comfort*, the folder describes the effects of too little humidity and explains how to obtain proper humidity levels with humidifiers.

### Tips on Making Collections

ILLUSTRATED BROCHURE, *How to Get Paid*, presents 29 approaches to the problem of collecting—A. August Tiger, 545 5th Ave., New York 17. Also included are illustrations of 23 "stoppers" suggested for use in dramatizing copy ideas. Address requests on company letterhead.

### Fans and Blowers

BULLETIN MD-101 (28 pages) presents detailed specifications, performance charts and dimension tables on Type MD standard and heavy duty fans—Chicago Blower Corp., 9867 Pacific Ave., Franklin Park, Ill. Also being offered is Bulletin CTB-103 illustrating and describing Type TP turbo-pressure blowers. Requests should be addressed on company stationery.

### Aluminum Air Filters

"LIFELONG" aluminum air filters are described in a four page illustrated circular—The George Evans Corp., Moline, Ill. Features designed to contribute to effective filtering action are precision angled openings which force air into high turbulence; beveled edges that grip and hold the dirt; and openings on the inlet side to hold lint without stopping air flow. The filters



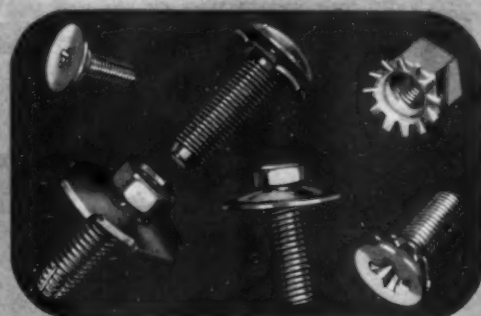
## special fasteners by NATIONAL LOCK

fit your production  
picture



save time,  
labor, money

Many manufacturers have found National Lock the ideal source for their complete fastener requirements. National Lock is able to supply you with specific fasteners for specific jobs ... resulting in a saving of production time and material costs. Turn your fastener problems over to us. Our skilled sales engineers will recommend efficient, money-saving fasteners for your jobs. Order screws, bolts and all your interior and exterior hardware the simplified "All From 1 Source" way ... from National Lock. Deliveries are dependable.



distinctive hardware ...  
"ALL FROM 1 SOURCE"

NATIONAL LOCK ...  
market basket for industry  
SCREWS • BOLTS • HANDLES • PULLS  
CATCHES • HINGES

**NATIONAL LOCK COMPANY**  
Rockford, Illinois



## A COMPLETE LINE OF GAS BURNERS..



FURNACE

BOILER

### FOR HOUSEHOLD HEATING

Whether for conversion or original equipment, Barber has a burner for every furnace or boiler, old or new.



WATER HEATER

INCINERATOR

### FOR APPLIANCES

Barber burners are used by leaders in the appliance field. Our jets can convert burners from one type of gas to another.



STOCK TANK

BAKERY

### FOR FARM AND COMMERCIAL

Barber burners are ideal for commercial heaters and ovens. A complete line of LP burners are available for on-the-spot conversion of farm and business heaters.

THE *Barber* GAS BURNER CO.  
3700 SUPERIOR AVE.  
CLEVELAND 11, OHIO

## **new literature**

(Continued)

may be cleaned by hosing or by submerging in soap suds and rinsing with running water.

### **Shaded Pole Motors**

SHADED POLE fractional hp motors for fan and blower applications are described in bulletin GEA-6134—General Electric Co., Schenectady 5. Illustrated are features and applications of motors with ratings from 1.5 watts through 1/6 hp. Also included are complete specifications, including dimensions and operating characteristics.

### **Welding and Cutting Equipment**

CONDENSED CATALOG (Q54E) presents information on welding and cutting equipment—The K-G Equipment Co., Inc., P. O. Box 538, Allentown, Pa. Illustrated are cutting torches and tips, welding torches and single and two stage regulators.

### **Steel Sheet Weight Calculator**

SHEET WEIGHT calculator (50 cents) is designed to aid in determining weights of many types of special and commodity steel sheets, including coated and uncoated grades as well as stainless steel sheets and plates and non-ferrous metals—Armco Steel Corp.,

Middletown, Ohio. On the reverse side of the calculator is a gage, weight and thickness table for stainless steel and hot and cold rolled mild steel sheets, strip and plates.

### **Gas Fired Unit Heaters**

SIX PAGE BULLETIN features full color illustrations of typical installations of suspended gas fired unit heaters — Reznor Mfg. Co., Mercer, Pa. Also included are cutaway views showing construction details, a detailed description of the venturi heat exchanger, specifications and dimensional data.

### **Light Transmitting Building Panels**

FOLDER ILLUSTRATES "Structoglas" light transmitting building panels, available in eight colors in corrugated and flat sheets—International Molded Plastics, Inc., 4387 W. 35th St., Cleveland 9. The panels may be used as partitions between rooms, as porch enclosures or as canopies. Various applications are illustrated in color.

### **Duct Fittings**

BULLETIN 654 presents information on packaged duct fittings—Duc-Pac Div., Swett Bros., 78 Island Pond Rd., Springfield, Mass. Illustrated are plenum, stack and trunk pipe fittings, all featuring the company's recently developed "snap-together" assembly. Also

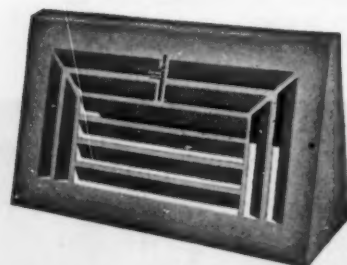
## **NEW DIFFUSER TYPE REGISTER**

### **FOR HIGH VELOCITY HEATING and COOLING**

No Whistle • No Cold Spots •



**MODEL D2 — (Wall)**



**MODEL D3 — (Out of Wall)**

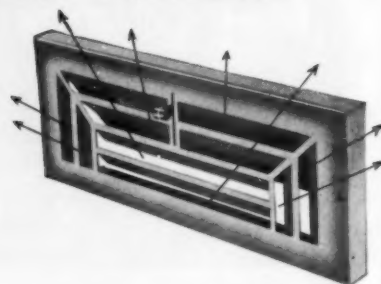
**Directs Heat where  
You Need it**

**High Velocity  
High Efficiency**

**Complete List  
of Sizes**

**Immediate  
Delivery**

**Write for  
Literature  
and  
Engineering  
Data**



**MODEL D1 — (Baseboard)**

The new Model D Diffuser type register is an addition to the regular National line of registers and grilles, all types and sizes, to meet any heating or air conditioning requirement. Quality and prices are right.

**WRITE FOR CATALOG**

**National** GRILLE AND REGISTER CO.  
3169 East 80th Street Cleveland 4, Ohio

**4** new sales helps



to keep **Reznor**  
*first* in sales--  
*first* in dealer profits

More dealers make more money selling Reznor. Here's why. Reznor is the world's most widely advertised gas unit heater. And Reznor gives you the right tools to build sales from the acceptance created by Reznor national advertising. That's why Reznor stays at the top—first in sales year after year.

The four pieces shown above are powerful new sales aids which will help Reznor dealers to even better sales records this year. Bulletin F54-UH will tell your prospects the complete story on Reznor suspended models in six colorful pages, including full color illustrations of some typical Reznor installations.

"Applications of Unit Heating" (Bulletin SA-541) is a handy pocket-size manual which covers the advantages of gas unit heaters as compared with other systems, as well as a lot of valuable hints on how to plan a successful Reznor installation. You'll want to have a copy with you at all times. Distribution of this piece to builders and architects will give your sales a boost, too.

The new Reznor Sales Planner—your guide to local promotion—gives you suggestions on how to get the most out of your advertising dollar through newspaper ads, direct mail, radio and TV. It includes sample sales letters and radio spots.

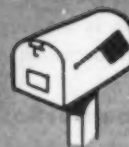
To help you plan your newspaper advertising, a new Mat Book shows 57 complete ads you can run as is plus a wide variety of illustrations of the various Reznor units for use in building your own ads.

If you aren't now a Reznor dealer, or if you don't yet have these new sales helps, you can't be getting your full share of the unit heater market. Don't miss any more sales. Your nearby Reznor distributor has all the facts. Get in touch with him today. Or drop us a line for his name and address. **Reznor Manufacturing Company, 53 Union St., Mercer, Pennsylvania.**



There's a **MARKET**

in any city  
or village  
or on the farm



and there's a

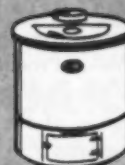
**Majestic**



Gas-fired or

Fuelless

**Indoor Incinerator**



to fit every one!

Homeowners all over the country are simply waiting to be sold about the marvelous convenience of *both trash and garbage disposal* by the Majestic Incinerator method. Six efficient models answer the needs of every prospect. Majestic's exclusive downdraft action and other modern features give you a convincing sales story that brings in profits.

**Gas-fired models:** (1) Automatic unit with drying pilot and 18,000 BTU burner, 2-bushel capacity, Model 10-G. (2) Manually operated 2-bushel unit with 18,000 BTU burner, Model 10-M. (3) Manually operated 3-bushel unit with 50,000 BTU burner rating, Model 1. All No. 10 Series gas units AGA-approved.

**Fuelless models:** (1) 2-bushel unit of modern design, fully insulated, with cast-iron grates, Model 10-F. (2) 3-bushel unit with cast-iron liner and grates, Model 3D. (3) Economical 2-bushel unit with steel-rud basket liner, Model 2. These three units use nothing but the waste itself as fuel.

SEE YOUR JOBBER OR WRITE TODAY

The **Majestic Co., Inc.**

110-A ERIE STREET  
HUNTINGTON, INDIANA



## new literature

(Continued)

available is a four page folder giving illustrated installation suggestions.

### Cutting and Welding Torches

CATALOG ADC 702B (36 pages) covers torches and tips for oxy-acetylene cutting and welding—Air Reduction Sales Co., 60 E. 42nd St., New York 17. Information is also presented on mixers, extensions, adapters and accessories to be used with the torches.

### Counterflow and Highboy Furnaces

DATA SHEET covers gas fired counterflow and highboy forced warm air furnaces.—The Firewel Co., Inc., 3685 Broadway, Buffalo 25. Both models are especially built for perimeter heating. They are shipped completely packaged and wired.

### Duct-Installed Air Purifier

CIRCULAR EXPLAINS how "Air-O-Fresh" automatic ozone generators, located in the furnace cold air return ducts, destroy cooking, tobacco and other odors—Melco Products, Inc., 301 5th Ave., S., Minneapolis. Installation suggestions include recommendations for location of the equipment, mounting and wiring instructions.

### Suspended Unit Heaters

FOLDER DESCRIBES "Blu-Flame" suspended gas fired unit heaters—Vacuum Gas Burner Co., 132 N. 1st St., Olean, N. Y. Features include a built-in draft diverter with dual side relief openings, a stainless steel pilot burner and a sealed safety thermocouple system. Specifications are given for four models ranging in capacity from 30,000 to 100,000 Btu per hr.

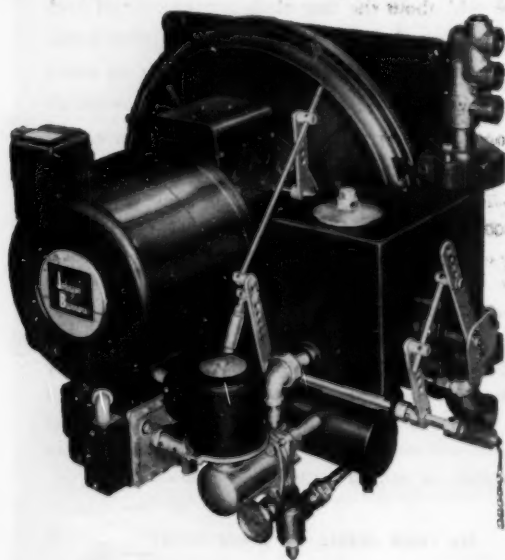
### Cooling Towers

BULLETIN 47-D covers Series B-23 residential cooling towers—Binks Mfg. Co., 3114-44 Carroll Ave., Chicago 12. Towers are shipped fully assembled, ready for either outdoor or indoor installation. Features include galvanized steel casing and blower, vibration eliminators at all metal-to-metal contacts, and spray shields to minimize spray exhaust.

### Second Edition of Building Code

SECOND EDITION of the *State Building Construction Code Manual* describes methods and materials acceptable as meeting the requirements of the state code, without prescribing their use—State Building Code Commission, 1740 Broadway, New York 19. The booklet is divided into five parts corresponding to the major divisions of the code—general provisions, space standards, structural standards, fire safety standards and equipment standards. It is now being supplied in

*Now you can have smooth, automatic "Cold Starts" regardless of Temperature and Viscosity variations!*



### THE REVOLUTIONARY NEW

# JOHNSON

## MODEL 53

built with a

**POSITIVE DISPLACEMENT METERING PUMP**

Here, for the first time, is a heavy-duty burner that will give you smooth, sure, automatic starts after shut-downs, when the oil in storage tank and lines is cold and hard to pump. More successfully than ever before, the new Johnson "Fifty-three" has solved the problem of "Cold Starts".

Built with a positive-displacement Metering Pump . . . a 3-Way Magnetic Oil Valve . . . and a high efficiency Suction Pump, the "Fifty-three" will maintain a fixed air-fuel-ratio regardless of variations in oil temperature and viscosity. It will start up and operate automatically on colder oils than any other burner on the market.

It is available in 8 sizes, from 25 HP to 400 HP. It brings you all the efficiency, economy, and fine engineering that have made Johnson Burners famous all over the world. It's surprisingly easy to service, inspect and regulate. All working parts are readily accessible. Make it a point to investigate the performance of this revolutionary new burner. We'll gladly send you full information.

*Johnson Oil Burners*.....

S. T. JOHNSON CO.  
940 Arlington Ave., Oakland 8, Calif.  
Church Road, Bridgeport, Pennsylvania

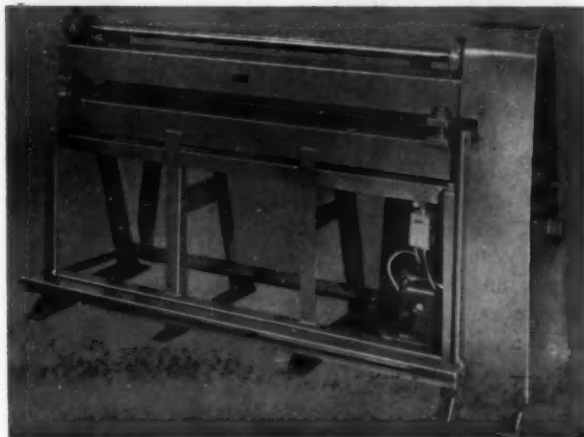
Builders of fine Oil Burner Equipment since 1903



# FALLSINGTON

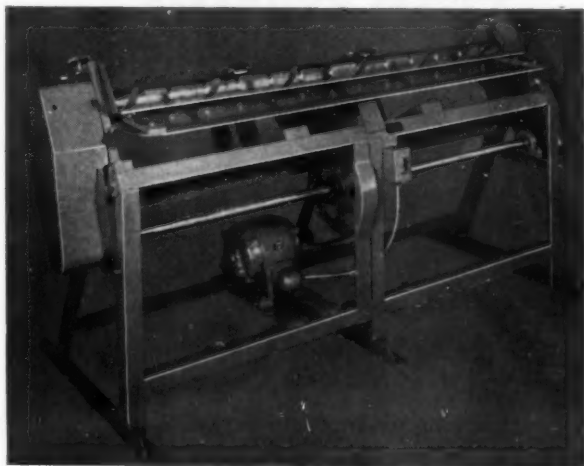
## Sheet Metal Machinery

DESIGNED FOR THE PRACTICAL SHEET METAL MAN



### FALLSINGTON'S NEW BACK GEARED HUSKY PRESS

Here is Fallsington's new Back Geared Husky Press — similar to the Fallsington Husky Press except that it is of heavier construction and, instead of a belt drive, is chain and gear driven. The Fallsington Back Geared Husky Press is ideal for short and long runs and is particularly suited to the use of economy dies as used in the aircraft industry.



### FALLSINGTON'S NEW 5' PIPE ROLLING MACHINE

The new Fallsington 5' Pipe Rolling Machine will roll pipe in one single operation without damage to the pipe or its locking device.

Pipes, 2' to 5' in length, 4" to 10" in diameter, of 30 to 26 gauge metal, can be rolled at the rate of 15 per minute.

This new time, labor and money-saver embodies the most modern aspects of machine tool building. It is easy to handle and occupies a minimum of floor space.

Literature will be sent on request to explain the operation of these two new Fallsington machines.

## FALLSINGTON MANUFACTURING COMPANY

Manufacturers of Sheet Metal Machinery and Tools  
FALLSINGTON PENNSYLVANIA



Take a Look at

## Clima-Twins

### by ROUND OAK

Just how is your sales picture? Beautiful now and then . . . and not so beautiful other times?

Well, you can give it that million-dollar-look *all the time* with the CLIMA-TWINS. They know no season.

One unit cools and dehumidifies in summer . . . the other heats in winter, with the same dependability that has made Round Oak a famous name.

The CLIMA-TWINS are the modern answer to modern living . . . today's market demands no less than year 'round conditioning of the air in both home and office.



sell "up"  
from a furnace  
to the  
*Clima-Twins*



Round Oak Company, Inc.  
Dowagiac, Michigan

AA

Please rush me description material on your new CLIMA-TWINS.

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

## new literature

(Continued)

limited quantity without charge to enforcement officers where the state code is applicable. Copies are available to the public at a price of \$3.00.

### Gas Fired Unit Heaters

HOW AND WHEN to use gas fired unit heaters is outlined in bulletin SA-541-A (20 pages) — Reznor Mfg. Co., Mercer, Pa. Included are hints on heater selection and installation, a schematic diagram explaining how a gas unit heater works, a heating survey outline, and instructions for estimating heat loss.

### Portable Welding Machines

CATALOG INSERT includes information on "Shield-Arc" portable welding machines — The Lincoln Electric Co., 22801 St. Clair Ave., Cleveland 17. Models are available with either two or four wheel carriages.

### Small Round Duct Heating Systems

ENGINEERING DATA on small round duct heating systems for slab floor or crawl space homes is presented in a 22 page manual — Jettronaire, Inc., 1100 E. Warrington Ave., Pittsburgh 10. Included are installation instructions illustrated with keyed line drawings, information on calculating heat losses and a section

giving degree days for various cities in the United States and Canada.

### Galvanizing Compound

GALVANIZING COMPOUND for protecting iron and steel surfaces from corrosion is described in a 10 page booklet—Chemical Div., Galvicon Corp., 40 W. 29th St., New York 1. The compound may be applied by brush, spray or dip method to either bright or rusty surfaces.

### Sales Training

A 20 PAGE BOOKLET, *A Check List and Planning Guide for Your Sales Training Program*, covers various aspects of sales training—Porter Henry & Co., Inc., 11 E. 48th St., New York 17. Prepared in check list form so that the sales executive can go through and check off "plus" and "minus" values of his company's training activities, the booklet makes possible a quick evaluation of the scope of a company's operation in this area.

### Textured Metal

PATTERN DESIGN selector gives specification data on 26 "Rigid-Tex Metals" patterns — Rigidized Metals Corp., 699 Ohio St., Buffalo 3. The selector is wheel shaped with a cut-out window which shows pattern number, width, thickness and depth as the pattern is

## Actual tests

## prove Cincinnati Elbows last longer!



All Cincinnati Elbows are covered with protective zinc because the elbow is hot-dipped *after* formation. Complete galvanizing insures a rust-proof longer life elbow with no trouble-causing leakage.

Cincinnati Elbows, precision made of uniform quality, are guaranteed to fit any size standard pipe. Available in any size, angle and metal, including galvanized steel, stainless steel, copper and aluminum.

Give your customers the best elbow available.

ASK YOUR JOBBER.

*Cincinnati Elbows fit better  
because they're made better!*

**CINCINNATI ELBOW CO.**  
2021 EASTERN AVE., CINCINNATI 2, OHIO

**AVERAGES 10% LESS  
IN  
OPERATING  
COST**

The same design features that make the standard Lo-BLAST famous for efficiency are now available in this residential size burner.



## **LO-BLAST ECONOMITE**

### **THE "MIGHTY MITE"**

#### **OF CONVERSION GAS BURNERS**

Nothing like it on the market! Here, indeed, is an *utterly different and better* gas burner. Consider these features: Power burner design assures perfect combustion, regardless of natural draft conditions—a proved fuel saver—safe and efficient for down-draft heating plants. The Economite burns so smoothly you can't tell when it's running—no "pop" when the burner goes on and off.

Every Economite is factory-tested on gas and shipped assembled—fully equipped with fool-proof safety. Simplicity of design and durable construction reduce service to a minimum. Capacities of 70,000 to 500,000 BTU give thorough coverage of the residential field.

**DEALERS!** You can make real money on the exclusive sales features of the Lo-BLAST Power Gas Conversion Burner. Get the facts—write today.



The Standard Lo-BLAST for larger installations. Capacities up to 20,000,000 BTU input.



**MID-CONTINENT  
METAL PRODUCTS CO.**

1960 N. Clybourn Ave., Chicago 14, Ill.

If you install gas venting...  
**METALBESTOS**  
will save you money!



#### **EASY, FAST INSTALLATION**

It doesn't take a crew to install Metalbestos — one man can easily handle the lightweight sections. Special couplers align pipe accurately, speed vent assembly. Adjustable fittings simplify installation problems, eliminate cutting and fitting.

#### **LESS DAMAGE AND WASTE**

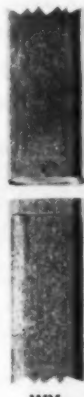
Metalbestos is an all-metal vent — it will not crack or break. The sturdy outer pipe resists damage during handling and installation, serves as a protective jacket for the inner aluminum "hot stack."

#### **FEWER SERVICE CALLS**

You can install Metalbestos and forget it. Its double-wall, insulated design... permanently gastight joints... and sturdy, durable construction assures safe, dependable venting with no costly repairs or replacement.



QC



WV



#### **A COMPLETE LINE OF TYPE B VENTS**

Approved by Underwriters' Laboratories. Correctly designed for use with all approved gas appliances requiring Type B vents. (Not for use with oil-burning appliances or gas-fired incinerators.)

##### **QC METALBESTOS**

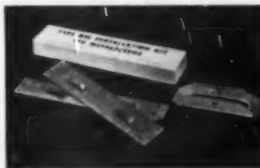
**Round Vent**—for standard venting applications where space is not restricted.

##### **WV METALBESTOS**

**Oval Vent**—specially designed for in-the-wall venting.

*Complete line of fittings available for both round and oval vent systems.*

#### **TYPE B-W INSTALLATION KIT**



Simplifies venting of recessed wall heaters — fits inside 2 x 4 walls without furring out. Contains all fittings and directions needed to make safe, officially correct installation. Designed for use with WV Metalbestos pipe. Approved by Underwriters' Laboratories, Inc.

**USE METALBESTOS FOR THE BEST JOB AT THE LOWEST COST**  
Stocked by principal jobbers in large cities. Factory warehouses in Atlanta, Dallas, Philadelphia, Kansas City, Chicago, New Orleans.



**METALBESTOS** DIVISION

WILLIAM WALLACE COMPANY • BELMONT, CALIF.

# LOSING too many bids?

Need a quality line of low-cost furnaces to compete for volume sales? Then you need SUN Fuel-Master furnaces . . . priced to sell against your toughest competition, yet in every respect equal in quality, dependability and workmanship to the finest furnaces on the market. *SUN furnaces carry a 20-year guarantee.*

There are 22 furnace sizes and models, oil and gas, plus companion cooling units for added sales. Price-wise, installation-wise, and profit-wise, you owe it to yourself to investigate the SUN line.

**SELL SUN FURNACES  
FOR GREATER PROFITS**



V-5000 OIL



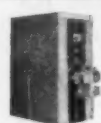
V-5000 GAS



V-5000C OIL



V-5000C GAS



G-6000 GRAVITY



H-5000 GAS



H-2000 OIL



H-5000 OIL

## GET THE FACTS

We'll be glad to send you complete literature, prices, and dealership information on SUN furnaces. Write TODAY!

**NOW**



**J. V. Patten Company**  
SYCAMORE, ILLINOIS, U.S.A.

ESTAB. 1888 • INC. 1928

## new literature

(Continued)

dialled. The metal is available in solid or perforated coils, or in cut lengths.

### Uses of Terne Metal

FOLDER WS-100M discusses the use of seamless terne metal for flashings, downspouts, valleys, ridge rolls, eave troughs and gutters as well as for roofing — Follansbee Steel Corp., Gateway Center, Pittsburgh 22. The folders are available in quantity to distributors for use in mailings to roofing dealers.

### Accident Prevention Booklet

BOOKLET ON SAFETY explains how accidents add to the cost of doing business — National Safety Council, Small Business Program, 425 N. Michigan Ave., Chicago 11. Intended specifically for small firms that have relatively few employees and no safety staff, the booklet lists seven steps for eliminating accidents and suggests sources of help.

### Oil Burner and A. C. Accessories

CATALOG presents information on oil burner and air conditioning accessories—Eddington Metal Specialty Co., P. O. Box K, Eddington, Pa. Data on air conditioning accessories covers spray nozzles, pressure regulating valves and water line filters. Fuel oil equipment shown includes burner nozzles, air cones, burner heads, electrode holders and line filters.

### Sheet Metal Brake

DATA SHEET describes the features of all-purpose sheet metal brakes—R. E. Smith, 1122 Elizabeth St., Waukegan, Ill. The company states the brake is capable of accurate radius bending of 18 gage sheets up to 26 in. wide and progressively narrower widths in heavier gages up to 3/16 in. mild steel. Specification tables are included.

### Residential Air Conditioners

"TEMTRON" CENTRAL residential air conditioners are illustrated and described in a four page folder—Ultrasonic Corp., 640 Memorial Dr., Cambridge 39, Mass. A 2 ton unit powered by a 1 hp compressor, the conditioner is designed to cool five to six room houses at a minimum operating cost. Also available is a catalog insert detailing specifications and features of the unit.

### Architectural Uses for Lead

VOLUME 19, No. 5 of the publication *Lead* includes information on the use of lead in modern architecture — Lead Industries Association, 420 Lexington Ave., New York 17. Lead for flashing, for facing strips, gravel stops and chimney caps are among the uses described and illustrated.



THERE'S A

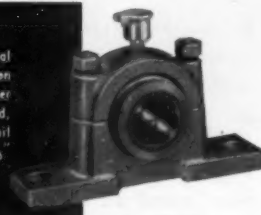
# Randall

PILLOW BLOCK  
AND BALL ASSEMBLY  
FOR **EVERY**  
TYPE APPLICATION

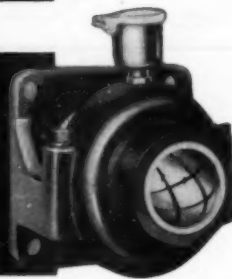


The unique Randall ball assembly is in its several different styles, a basic part of every Randall Pillow Block. It features the exclusive Randall "deep well" reservoir with controlled double lubricated graphited bushing. It is readily adapted to a variety of different housings and may be purchased separately.

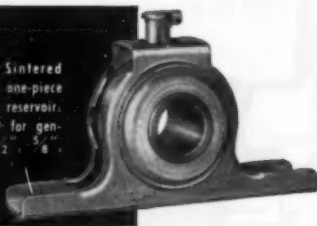
**NORMAL DUTY PILLOW BLOCK.** A general service pillow block for normal duty on small shafts and for heavier duty on larger shaft sizes. Double lubricated with graphited, phosphor bronze bushing in wool packed oil reservoir housing. For shafts  $\frac{1}{2}$ " to  $3\frac{15}{16}$ " inclusive.



**FLANGE OR SIDE MOUNT PILLOW BLOCK.** A top quality pillow block for the most exacting service. Double lubricated with graphited, phosphor bronze bushing in wool packed oil reservoir housing. Widely used in air moving equipment, conveyors, and agricultural equipment. Side mounting only. For shafts  $\frac{1}{2}$ " to  $1\frac{15}{16}$ " inclusive. Other light and normal duty flange units available in three and four bolt styles.



**SINTERED BUSHING SERIES.** Sintered bronze bushings in streamline one-piece steel housings. Wool packed oil reservoir. Mounts in any position. Excellent for general service on smaller shafts  $\frac{1}{2}$ ",  $\frac{5}{8}$ ",  $\frac{3}{4}$ ",  $\frac{15}{16}$ ", and 1".



Ask your area distributor for more complete information and prices on Randall Pillow Blocks. The most complete line available anywhere.

BRONZE BAR STOCK  
BRONZE BUSHINGS  
PILLOW BLOCKS  
SHEET LUBRICATOR



GRAPHITED BEARINGS  
THRUST WASHERS  
SAFETY COLLARS  
BRONZE CASTING

**RANDALL GRAPHITE BEARINGS, INC.**

1000 S. Greenlawn Ave., Lima, Ohio

## Extra \$ \$ Dollars for every installation

**FURNACE  
MODEL**



for  
warm  
air  
systems

## Add GLYCOLATOR\* Air Sanitation

to new and existing heating  
and air conditioning installations.

Every installation of this fast selling, low-cost Furnace Model GLYCOLATOR will add more dollars to your total sales along with desirable PLUS dollars of extra profit for your business operation.

The Furnace Model GLYCOLATOR was designed specifically for installation with existing or new warm air heating and air conditioning systems. The compact (10" high) Furnace Model is an electrically operated unit, easily attached to the side of the furnace or air conditioning unit and automatically vaporizes Glycosol. Thermostatically controlled — it protects every room evenly, efficiently and inexpensively — treats homes with furnaces of up to 120,000 B.T.U.

According to hospital tests, Glycosol vapors reduce airborne bacteria and viruses from 80% to 100%. Laboratory experiments have proven conclusively that it is odorless, harmless and absolutely non-toxic.

There is a complete line of heating, air conditioning and portable model GLYCOLATORS available for every application.

**DESIRABLE FRANCHISE AREAS AVAILABLE — WRITE TODAY FOR PARTICULARS.**

\*Registered

Please send me full information on the profitable Glycolator sales plan.

NAME .....

COMPANY .....

ADDRESS .....

CITY ..... STATE .....

**Glycolator**  
DIVISION

IRON CITY CHEMICAL  
COMPANY

Valencia, Pa.

## we hear that . . .



ARCHITECT'S DRAWING shows a partial view of the new 40,000 sq ft building now occupied by Cincinnati Elbow Co.

► CINCINNATI ELBOW Co. has completed the move into its new 40,000 sq ft plant, where automatic machines will perform the cutting, forming, bending, crimping and testing operations involved in producing one piece, zinc coated elbows.

► HARRY GURNEY, sales manager, Surface Combustion Corp., has been writing a series of letters to Janitrol dealers in which he suggests a number of selling points based on product quality which the dealer might use in promoting furnace sales.

► MINNEAPOLIS-HONEYWELL REGULATOR Co. has won two awards for product literature in an annual competition sponsored by the Producers' Council, Inc., and

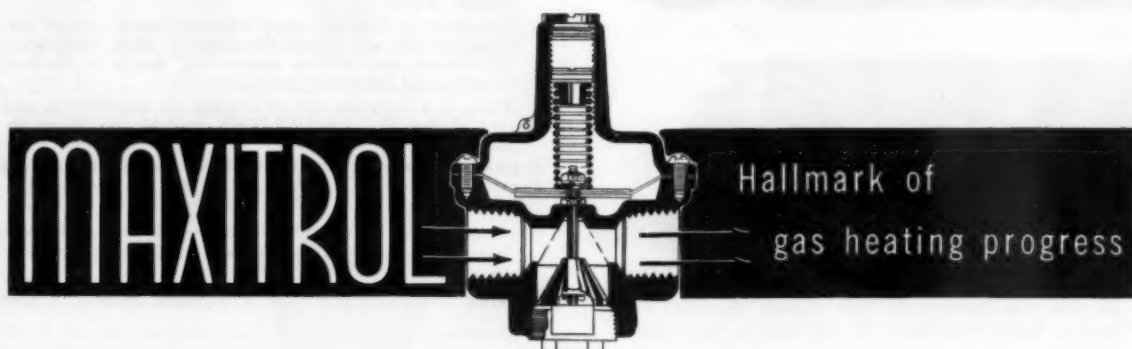
the American Institute of Architects. Cited was the company's publication, *Manual of Automatic Control for Heating, Ventilating and Air Conditioning* and an advertisement on "customized" temperature control.

► HUB-AIRE, INC., 2300 N. Harlem Ave., Elmwood Park, Ill., has sold and installed 246 warm air heating systems since its change in management six months ago. This looks like a big first year for the company headed by Lem Miller, president. Other officers of the firm are Howard J. Flagler, vice president, and T. J. Baldassari, secretary-treasurer.

► CURTIS MFG. Co. is celebrating its 100th anniversary. During its century of existence the company has developed many product improvements and innovations which have achieved industry-wide recognition and adoption. With 100 years of experience behind it, the organization looks forward to continued progress and expansion of its operations.

► AN INNOVATION of the 1954 dealer training schools sponsored by the Coleman Co. was the option given dealers of taking specialized work in either year 'round air conditioning or heating only. According to C. L. Burrows, sales vice president, more than 50 per cent of the registrants chose to take special training in year 'round air conditioning.

**For true efficiency and economy  
in gas pressure regulators**



*Originators of Straight Thru-Flow*

**MAXITROL COMPANY**

12200 BEECH ROAD

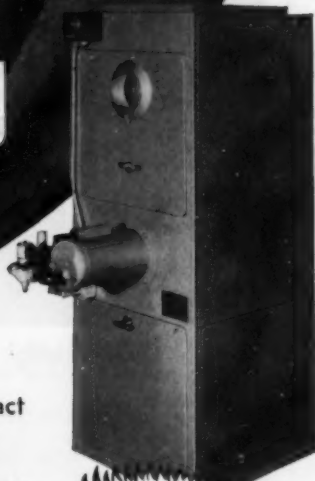
DETROIT 39, MICH.

**NEW! REVOLUTIONARY!**

# The GORDON-AIRE

Gas-Fired

## HI-BOY



New Compact

## HI-BOY...

with an Exclusive New Tear-Drop, Air-Foil Combustion Chamber Design and Multi Boiler Tube Heat Exchanger that provides **GREATER HEATING SURFACE** than any conventional heat exchanger!



20" Square . . . 53" High . . .  
84,000 BTU/hr INPUT  
67,200 BTU/hr OUTPUT  
Completely factory wired and assembled . . .  
A.G.A. Approved.

### NO OTHER HI-BOY has these GORDON-AIRE Lifetime FEATURES!

- Multi Boiler Tube Construction — Greater Heating Surface
- New Tear-Drop, Air-Foil Design Combustion Chamber . . . Even Heat Distribution
- Identical Door Openings for Cold Air Return — Saves Installation Time
- Famous Roberts-Gordon Spreader-Flame Burner — The Standard of the Industry
- Factory Built Filter Rack and Return Air Boot
- Fiber-Glass Foil-Faced Insulation
- Solid Base . . . No Grouting Necessary

For All the facts . . . write, wire or phone

## ROBERTS-GORDON

Manufacturers of  
Gas Heating  
Equipment



for Over a  
Quarter of  
a Century

BUFFALO 6, N. Y.

Here's  
What  
You've  
Been  
Looking for!

## POWER ROOF VENTILATOR

# CARNES



(Above Style Available in sizes up to 24")

You'll find everything you want with Carnes Power Roof Ventilators. Available for all types of commercial and industrial installations in a large range of sizes — duct sizes from 4" to 24" and capacities from 100 CFM to 17,600 CFM. Plus — quiet operation; easy installation; exhaust without back draft; and longer service.

. . . this all-aluminum power  
roof ventilator with the

famous **CARNES** "know-how"

**LOW SILHOUETTE** — for a neat installation that will not extend above the normal roof parapet.

**AVAILABLE NOW** — Shipment of all sizes and types of ventilators can be made without delay.

**COMPETITIVELY LOW-PRICED** — You'll be amazed at the price of Carnes Roof Ventilators. Prices are in line with ordinary ventilators.

**NON-SPARKING ALUMINUM FAN WHEELS** — This important safety feature is standard equipment. Available in both backwardly inclined centrifugal fan wheels and axial flow fans.

**ALL-ALUMINUM CONSTRUCTION** — For years and years of dependable non-rusting service and highest quality appearance.

# CARNES

The Most Talked About Name in Air Distribution

W. R. CARNES CO.

VERONA, WISCONSIN

Both you and your customers  
profit when you install the  
**REX AIR-PAK  
BLOWER-FILTER**



**R**ight around the corner from your shop there's a big profitable market waiting for you! One out of every five of the heating systems in your area is a gravity furnace that needs modernizing—needs an efficient and economical REX AIR-PAK BLOWER-FILTER.

The REX AIR-PAK BLOWER-FILTER—by forcing clean, filtered air into hard-to-heat rooms in winter and providing cooling ventilation in summer—steps up comfort, saves fuel and money for your customers, makes sales and profits for you.

Packaged for easy installation—powered by the sturdy, trouble-free Rex blower—cushioned on resilient rubber for quiet operation—the REX AIR-PAK is designed for many years of satisfactory service. A full range of sizes makes it simple for you to modernize any warm-air gravity heating job.

*For complete details—write today to*

**AIR CONTROLS, INC.**

*Division of the Cleveland Heater Co.*

2310 SUPERIOR AVENUE • CLEVELAND, OHIO

**we hear that**

*(Continued)*

► **DAVID E. FEINBERG**, formerly vice president of the United States Air Conditioning Corp., has been elected president. He has been an officer and director of the corporation for several years.



THE WORKING OUT of engineering details is one of the services offered by Hagle Supply Co., Inc.

► **HAGLE SUPPLY CO., INC.**, recently moved into its new warehouse at 67-72 City Terrace, Newburgh, N. Y. The new building is equipped throughout with automatic machinery. Materials are so placed that, with automatic handling equipment, trucks can be loaded and reloaded in a minimum amount of time, aiding the customer to get quick delivery or pick-up. Recently established is a new department which offers a rebuilding and exchange service on oil and gas fired controls and equipment.

► **PLANS** for the 12th International Heating and Ventilating Exposition are well advanced, and nearly 400 manufacturers have already engaged exhibit space. The exposition, sponsored by the American Society of Heating and Ventilating Engineers, will be held in Philadelphia, January 24 to 28. Equipment displayed will demonstrate every known method of moving and conditioning air.

► **WHEELING STEEL CORP.** plans to construct a second continuous galvanizing line for the production of galvanized sheets and strip. The new line, which will be located at the company's factory in Martins Ferry, Ohio, is expected to be in operation by next May.

► **FOLLANSBEE METALS** is the new name for the former Follansbee Metal Warehouses, a division of Follansbee Steel Corp.

► **LAU BLOWER CO.** has opened a new plant at Kitchener, Ont., Canada. The Canadian plant will begin operation with the production of the company's "Econo-Pak" furnace blower.



# Firomatic

## QUALITY PRODUCTS

### Are Designed To Increase Your Profits

**Fusible and Non-Fusible Valves • Fuel Oil Filters • Safety Devices**

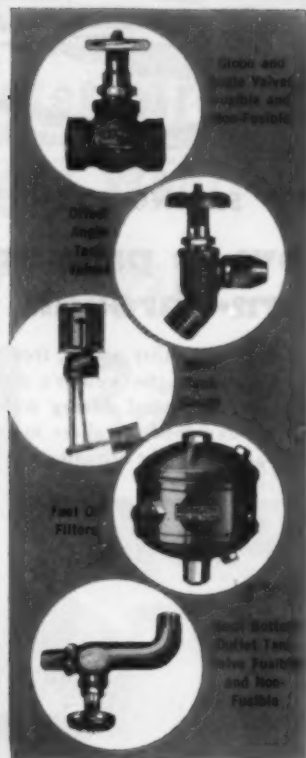
Firomatic products, famous for quality for nearly a quarter century, are designed to give you the highest profits possible. Ruggedly built for long wear, they eliminate call-backs after installation that often eat up profits—and they're priced to give you substantial mark-ups. Send for the complete Firomatic catalog and prices.

Illustrated, are just 5 of over 80 different Firomatic products available.

**THE MORSE-SMITH-MORSE CO.**

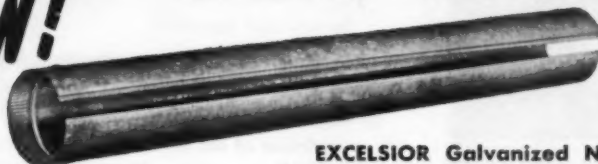
165 Dexter Avenue  
Watertown, Mass.

Firomatic Design Can Be Imitated—But Firomatic Quality and Service Cannot Be Duplicated



**Now!**

### It's KING SIZE in furnace pipe too!



**EXCELSIOR Galvanized Nested Snaplock Pipe in 5-Foot Lengths**

Available in 4", 5", 6", 7", 8" — 28 and 30 Gauge with these advantages —

**EASY ASSEMBLY**

Slight hand pressure quickly locks it — cannot come apart. One end is crimped and beaded giving a rigid joint without connectors.

**EASY INSTALLATION**

The perfect pipe for perimeter and small-pipe systems — especially in crawl-space installations.

**EASY TO STOCK**

Packed 50 feet to a bundle, 100 feet can be stocked in the same amount of space as one 10-foot length of made-up pipe.

**FREIGHT SAVINGS**

Nested pipe saves dollars in shipping charges over made-up long pipe.

*Write for Particulars and New Catalog on Excelsior Complete Line*

## THE EXCELSIOR STEEL FURNACE COMPANY



**118 S. CLINTON ST.**

EXCELSIOR HEATER & SUPPLY DIV.  
The Excelsior Steel Furnace Company  
879 Hersey Ave., St. Paul 4, Minn.  
Telephone: NEstor 7255

**Phone: FRanklin 2-8120**

BREX & BIELER DIV.  
The Excelsior Steel Furnace Company  
229 Marion St., Brooklyn 33, N. Y.  
Telephone: GLenmore 2-7881

**CHICAGO 6, ILL.**

EXCELSIOR HEATING SUPPLY DIV.  
The Excelsior Steel Furnace Company  
2 East 3rd. St., Kansas City 5, Mo.  
Telephone: VIctor 3715



## COST SAVING IDEAS FROM LINCOLN

### How to prevent welding Burn-Through

Solid, high-quality welds, free from burn-through, depend largely on the welder's ability to control the arc. Accurate arc control during welding is easier when an electrode designed for sheet metal is used with the right type of arc and right arc intensity.



Figure 1. Machine guards are fabricated at low cost from 1/8 gauge black iron by welding joints at corners with Lincoln Fleetweld 35.

Figure 2. Frame saws are built from 1/4" metal brake formed and fillet welded on inside corners with Fleetweld. Arc type is changed for various positions of welding.

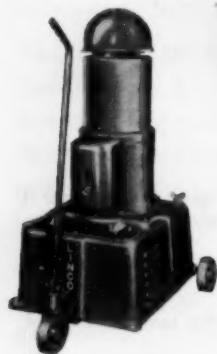


Figure 3. Dual Continuous Control of Lincwelder DC-250-MK 250 amp DC arc welder makes quality welding possible at low cost on sheet metal. Dial at left selects arc type. Dial at right selects arc intensity. Welder range 10-250 amps.

Light gauge metals are welded most efficiently with Fleetweld 35 (E-6011) electrodes. The right combination of arc type and arc intensity is set for the thickness of metal on the Dual Continuous Control of the Lincwelder 250 amp DC arc welder.

Details of operation of Dual Continuous Control are explained in Lincoln Bulletin 1332, available by writing

**THE LINCOLN ELECTRIC COMPANY**  
Dept. 3904 • CLEVELAND 17, OHIO  
THE WORLD'S LARGEST MANUFACTURER OF  
ARC WELDING EQUIPMENT

we hear that

(Continued)



NORMAN C. CURTIN, Anthracite Information Bureau engineer, is one of the industry representatives who conducts heating clinics in the bureau's "coalmobile" to acquaint consumers with trends in automatic hard coal heating

► THE ANTHRACITE INFORMATION BUREAU is bringing information on developments in the field of hard coal heating to residents of several towns and cities in Massachusetts, New Jersey, New York, Connecticut and Pennsylvania in its "coalmobile." Special displays, broadcasts, literature, movies and advertising are used to bring new automatic anthracite burning and ash removal equipment to the public's attention. Various types of automatic hard coal heaters are being shown by local dealers as part of the exhibit. From September 20 to 25 the "coalmobile" will be in Harrisburg, Pa.

► HOBART C. RAMSEY, president, Worthington Corp., and Harold P. Mueller, Sr., president of the Mueller Climatrol Div., Worthington Corp., have announced completion of the acquisition by Worthington Corp. of the Mueller company. The full line of Mueller products will continue to be produced at the division's Milwaukee plant.

► CARRIER CORP. is conducting a residential air conditioning sales contest, prizes for which are four all-expense-paid vacation trips for salesmen and their wives. The contest began on August 15, will close on October 9.

► THE HOME HEATING and cooling department of the General Electric Co. recently began its fall factory service training program. Schools will be held in four Canadian cities as well as at various locations in the United States. Each class will feature the assembling and tearing down of G-E oil fired equipment under the guidance of factory instructors.

Cities on the schedule include: Boston, September 20 to 21; Fort Wayne, September 20 to 22; Providence and Toledo, September 23 to 24; Hartford and Buffalo, September 27 to 28; New Haven and Syra-

## A Complete SLAB-FLOOR Duct System...



PHOTO — Hathaway Meadows 600-unit Subdivision, St. Louis, Mo. SONOAIRDUCT was installed in all of the 300 slab-floor units using an especially engineered perimeter system without metal fittings, developed by Milton Construction and Supply Co., St. Louis, Mo., contractors. Melvin C. Hendricks, Supt.

through the use of

# SONOAIRDUCT

PAT. APP. FOR



## FIBRE DUCT

Economical, lightweight SONOAIRDUCT Fibre Duct is designed to save installation cost in gas or oil fired loop, radial and lateral slab-floor perimeter warm air heating systems. Aluminum foil lined and wrapped outside with weather-resistant asphalt duplex kraft. Permitted by F.H.A. and widely used by builders everywhere. Sizes 2" to 36" I.D., in specified lengths up to 50 feet, or can be sawed to desired lengths on the job.

SEE OUR CATALOG IN SWEET'S

Write for Complete Information and Prices—

**SONOCO PRODUCTS COMPANY**

Construction Products Division  
LOS ANGELES, CAL. HARTSVILLE, S. C. — NAIN PLANT — MONTCLAIR, N. J.  
AKRON, IND. BRANTFORD, ONT.



- for Greater Strength
- for Longer Wear
- for Lower Cost



## Zatko One Piece Stamped Steel V-BELT PULLEY for Heating and Air Conditioning Equipment

Standard Fractional Horse Power V-Belt Pulleys. All sizes in stock. Variable Pitch. Allows Speed Variation up to 30%. OD's from 3 1/4" to 3 1/2".

### ALL PULLEYS BROACHED AND 100% INSPECTED

Used by a majority of the largest Automobile and Heating-Air Conditioning Manufacturers.

Write for literature  
and prices



## Zatko Metal Products Co.

20850 St. Clair Ave., Cleveland 17, Ohio



## we hear that

(Continued)

cuse, September 30 to October 1; New York City-Queens and Minneapolis, October 4 to 5; New York City-Brooklyn and Fargo, N. D., October 7 to 8; Newark, October 11 to 12; Winnipeg, Manitoba, October 11 to 13; Scranton, October 14 to 15; Regina, Sask., October 14 to 16; Duluth, October 18 to 19; Calgary, Alberta, October 18 to 20; La Crosse, Wis., October 21 to 22; Vancouver, B. C., October 21 to 23; Los Angeles, October 25 to 27; Chicago, October 25 to 29; Phoenix, October 28 to 30; Milwaukee, November 1 to 2; New Orleans, November 1 to 3; Rockford, Ill., and Washington, D. C., November 4 to 5; Springfield, Ill., and Richmond, Va., November 8 to 9; Indianapolis and Baltimore, November 11 to 12; and South Bend, November 15 to 16.

▶ A NEW BUILDING PROGRAM is being carried out by Stewart-Warner Corp., at its U. S. Machine Div. An addition containing nearly 50,000 sq ft is being erected at the division's largest plant in Lebanon, Ind., to provide increased manufacturing facilities and additional office space.

▶ ROBERTSON HEATING SUPPLY CO. recently celebrated the opening of its new warehouse located at

275 N. Forge St., Akron, Ohio. Staffing the new office are Ed Smith as warehouse supervisor and Ed Porter as office manager and inside salesman. Other salesmen for the territory are John Jones, Chick Evans, Alec Zumbar and Bill Schleicher.



REPRESENTATIVES of the French structural steel industry visited the Joseph T. Ryerson & Son, Inc., steel service plant during their stay in Chicago

▶ SEVEN VISITORS from France recently toured the Joseph T. Ryerson & Son, Inc., steel service plant in Chicago, spending a full day observing the company's operating methods and procedures and inspecting its facilities. This was the study team's first step in a

## ONE doesn't fit ALL needs!



### Get *Airsan* Filters ENGINEERED TO FIT THE JOB — RIGHT EVERY TIME

No filter does all jobs, meets every need. That's why Airsan Filters are engineered to the job to offer more effective dust collection. Airsan's expanded metal face plate acts as a lint arrestor to provide easier cleaning and servicing. It distributes air easily over the entire filter area. Provide high filtering efficiency and dust holding capacity with less resistance. Features include all galvanized construction and welded lock corners. Write for data.

**Send for Free Bulletins**

## Air Filter Corporation

108 A NORTH WATER ST. • MILWAUKEE, WIS.  
Canadian Representative  
DOUGLAS ENGINEERING CO., LTD., MONTREAL

**A Few Distributorships Available. Write for Details!**

### AIR FILTERS

(Low Velocity)

Viscous type, permanent and cleanable designed for industrial, commercial and domestic use. Available in 1" and 2" thickness.

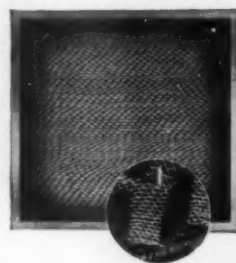
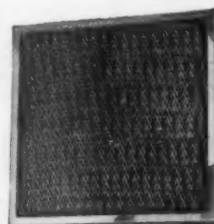
### VIRO-CRIMP

(High Velocity)

Has a specially designed high velocity Viro-Crimp filter core. Hemmed edges provide a safety feature. Operates efficiently at 300 to 500 fpm. Available in 2" and 4" thickness.

### GREASE FILTERS

Permanent, cleanable type Airsan Grease Filters made especially for range canopies, galleys, kitchens. Available in 2" thickness.

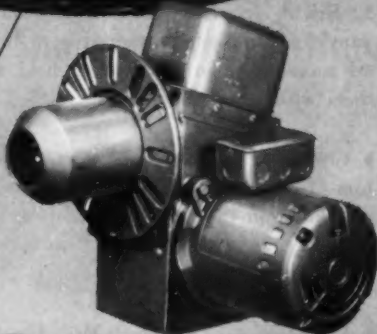




for the **SMALLEST JACKET  
EXTENSION**

for the **MOST LIMITED  
CLEARANCES**

use the  
**NEW**



# SUN-RAY BANTAM

Now you can have a burner compact enough to fit the smallest jacket extensions without sacrificing quality or efficiency. Fitting a minimum extension of only  $8\frac{3}{4}$ " and measuring  $15\frac{11}{16}$ " wide, the Sun-Ray Bantam makes possible important space savings in the design of boiler and furnace units with limited clearances.

Despite its truly small dimensions the Bantam has the same high quality construction and efficiency as all Sun-Ray burners.

## FEATURES

*Exclusive Perimi-T-Aire Metering\** for uniform, unimpeded air intake—eliminates all dead spots. Finger-tip dial facilitates precise adjustment of air volume.

*One Piece Precision Machined Casting* with housing scroll designed for smooth, efficient air delivery.

*Pressure Seal Design* assures efficient, quiet, uniform air delivery. Unique bulkhead seals low pressure from high pressure air, eliminates pulsation.

*Plus:* The use of highest quality standard parts throughout; easy servicing, with swing-away transformer exposing all vital parts. All models are approved by Underwriters' Laboratories, Inc., C.S.A. and all other leading authorities. Capacity is 0.5-2.00 g.p.h. Available flanged or base mounted.

\*Patent pending



**ATTENTION BOILER AND FURNACE MANUFACTURERS**—Sun-Ray's engineers will cooperate in adapting the Bantam to your particular requirements. Write for details.

Sun-Ray Models from 0.5 to 22 g.p.h.



**SUN-RAY BURNER MFG. CORP.**  
139-34 QUEENS BLVD. • JAMAICA 35, N. Y.

## THE BEST IN ASBESTOS COSTS NO MORE

Now's the time to place an order with  
your wholesaler for these essential items



## Sal-Mo ASBESTOS PIPE JOINT TAPE

A strong blending of Canadian asbestos fibres in a smooth, uniform sheet of high tensile strength. 12 rolls of 3" tape or 18 rolls of 2" tape are put up in a handy carton.

## Sal-Mo ASBESTOS PAPER

## Sal-Mo ASBESTOS MILLBOARD

## Sal-Mo ASBESTOS FURNACE CEMENT

## Sal-Mo ASBESTOS CORRUGATED AIRCELL PAPER

## Sal-Mo ASBESTOS AIRCELL SHEETS & BLOCKS

## Sal-Mo ASBESTOS INSULATING CEMENT

**SALL MOUNTAIN COMPANY**  
HAMILTON, OHIO



month-long tour during which they visited various firms representing different segments of the steel industry. Their objective was to gain knowledge of steel operations in the United States that would aid in stepping up production in their own country.



REGIONAL MANAGERS of the Norman Products Co. gathered in Columbus to discuss sales and marketing plans for 1955

► THE NORMAN PRODUCTS Co. recently held a five day sales meeting for its regional managers at company headquarters in Columbus. Homer Schmitt, re-

cently appointed to direct the development of year 'round residential air conditioners, discussed specifications and applications of this equipment. Charles Reichelderfer, chief engineer, covered some of the engineering details of the company's gas heating and air conditioning equipment.

► CRANE Co. will observe its 100th birthday on July 4, 1955. The centennial will be celebrated at the company's Chicago office, plants, branches and subsidiaries during the entire year with special events.

First issue of the *Crane Sunnyday News* recently came off the press. Its purpose, according to George L. Erwin, Jr., vice president in charge of the company's heating sales division, is to inform dealers of advances made in the heating field and to acquaint them with new selling ideas.

► CHARLES H. KNECHT & SONS, sheet metal contractors of Merchantville, N. J., has recently completed a new addition to its sheet metal shop, increasing production space from 1500 sq ft to approximately 7000 sq ft.

► EXECUTIVES of Mitchell Mfg. Co. have been conducting a series of meetings with air conditioning dealers to discuss problems arising in connection with retail sales of room air conditioners.

## Your \$3.48 profit + installation charge makes service calls pay off!



**\$9.95**  
PLUS  
INSTALLATION



Patents Pending

**RMC**  
**filter-chek**  
**AIR FLOW INDICATOR**

Shows condition of furnace filters at-a-glance

**When to clean!**  
**Time to change!**

### Continuously registers filter condition for heating or air conditioning units

● Instrument detects loss of air flow due to clogged filters. Measures drop in static pressure, as compared with normal operation. Easily, positively calibrated for wide range of initial pressures. Extremely sensitive, dependable. One moving part mounted in glass jewels. Steel case with baked-enamel finish, inside and outside. Requires no electricity or liquids... no connection across filters.

● You encourage regular attention to cleaning and changing that dirty filters require, when you sell customers on getting a new RMC filter-chek. It helps home owners stop needless waste of heat and fuel—pays for itself in dollars saved. Put one on every new furnace you install. Use RMC filter-chek *now* to make service calls more profitable. Takes only 10 minutes to mount on warm air plenum. Accurately adapts to any system. Guaranteed 5 years. Write for full details NOW.

Sold through recognized heating wholesalers

**REX METAL-CRAFT, INC.**

1718 GENT STREET • INDIANAPOLIS, INDIANA

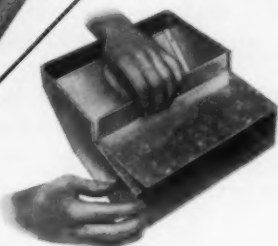
**SAVE TIME  
SAVE SPACE  
SAVE WASTE**

with **DUC-PAC**

New . . . . Revolutionary  
Snap-Together Fittings



They snap together in  
a matter of seconds.



Here at last is a line of knocked-down duct fittings designed specifically to fill YOUR needs. DUC-PAC'S exclusive internal snap lock eliminates any "folding over" operation... improves appearance of finished job.

#### THEY SAVE YOU TIME

You can assemble DUC-PAC galvanized fittings in seconds. Simplified system saves time in laying out a job. Practical design of fitting saves time in installing. They just *snap* together . . . no hammer necessary.

#### THEY SAVE YOU SPACE

DUC-PAC galvanized fittings are shipped knocked-down, packaged 12 to a carton, require only about 10% of space needed to store old-style fittings. They save space in your truck, too.

#### THEY SAVE YOU WASTE

Because they're knocked-down and packed in cartons, DUC-PAC galvanized fittings don't become dented or battered in storage or in the truck. Eliminating waste keeps your costs down.

Request free descriptive bulletin  
showing complete line.

**DUC-PAC**

DIVISION of SWETT BROS.

78 ISLAND POND RD., SPRINGFIELD • MASS.



## How to Find and Keep New Business During Your "Slack Period"



There's no "slack period" in the furnace and boiler cleaning business. The cleaning business keeps your service crews busy all year, contacts and **KEEPS** new customers by firmly establishing you as an authority — the man to call for all other heating needs.

Join the many others who are building cleaning businesses this year with high quality Premier Furnace and Boiler Cleaners. Premier machines are the world's most widely used furnace cleaners!

- Separately ventilated motor — prevents burnouts on hot jobs.
- Extra large filter area — for continuous, on-the-job operation.
- Dual purpose — powerful vacuum unit PLUS portable hand blower.

Premier Furnace Cleaners, the oldest name in the furnace cleaning business, make cleaning jobs easy, keep the jobs profitable. Compact, easy to handle, a low cost Premier Cleaner allows one man to average four profitable jobs a day. And customers like the way Premier units handle messy work so thoroughly and quickly.



755 Woodlawn Avenue, St. Paul 1, Minnesota  
35 Gerrard St. West, Toronto 2, Canada

TAKE THE FIRST EASY STEP TO A NEW, MONEY-MAKING BUSINESS — WITH THIS COUPON.

PREMIER COMPANY, Dept. 406  
755 Woodlawn Ave., St. Paul 1, Minnesota

Without obligation, please send complete details on the Premier Furnace Cleaner.

NAME .....

FIRM .....

ADDRESS .....

CITY ..... ZONE ..... STATE .....



## we hear that

(Continued)

► **THE PERMAGLAS DIV., A. O. Smith Corp.**, has set up a "product model shop" where it will fabricate and test pilot models of residential heating and air conditioning equipment.

► **JAMES W. HOSLER**, manager of the merchandise department, American Blower Corp., has been elected vice president of the Industrial Unit Heater Association.

► **CONSTRUCTION** has been started on Jones & Laughlin Steel Corp.'s new research center at Pittsburgh. The new research center will consist of several buildings, will house a staff of about 100 persons.

► **AEROFIN CORP.** has moved to a new plant at 101 Greenway Ave., Syracuse. The new plant contains 80,000 sq ft of production space.

► **THIRTY-FIVE** Columbus plant supervisors of the Armstrong Furnace Co. became "dealers-for-a-night" at a recent "mock dealer meeting" held by the company. The purpose behind this meeting was to inform the plant foremen of company sales and advertising programs. The meeting included presentations of sum-

mer air conditioners and of gas and oil fired furnaces and burners. Also discussed were promotional material and merchandising aids.

► **W. W. SEBALD**, president, Armco Steel Corp., recently donated \$1500 to be awarded to the most self-reliant seniors in three Middletown, Ohio, high schools. First prizes of \$400 each went to Marie Bond, whose after-school work week totaled 55 hours, and to Martin Egleston, who works a small farm in his out-of-school hours.

► **YORK-SHIPLEY, INC.**, has rebuilt the production facilities destroyed by fire in mid-June and has achieved back-to-normal production of oil and gas heating equipment.

► **PHILCO CORP.** supplied the units which provide both heating and cooling for the shops in the newly opened Arcade Building in Lancaster, Calif., an area where temperatures range from 25 to 110 F. In spring and fall, the air conditioners are used on the heating cycle in the morning, and for warm afternoons are switched to either fan or to cooling.

► **A RECENT VISITOR** to the Fort Wayne plant of Wayne Home Equipment Co., Inc., was Karl Wenger, a technician employed by the Swiss distributor of



## See for Yourself How It Speeds Replacements and New Installations.

Note the longer collar. It keeps the damper out of the gas stream to insure "performance as perfect as possible." And it comes with a quick clamp screw that cuts installation in half. Think what that means in increased business!

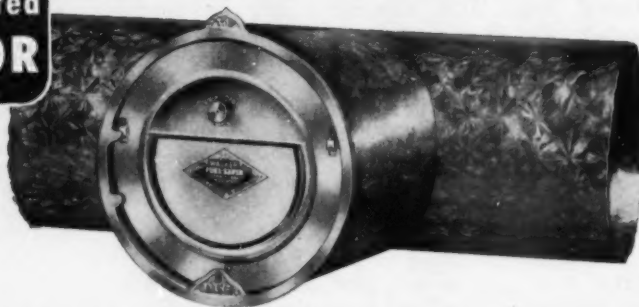
Of course, Walker continues to offer a complete range of sizes and models of automatic Fuel-Saver Draft Regulators. But the new and improved Walker L-CD is the leader of the line. Remember, more than 13,000,000 sales mean fool-proof and long-lived service with all applications. See your jobber or write us.

### The First

Handbook for industrial installations published by Walker! Full of "how-to" and "where-to" information—with plenty of tips for profit. Send for your FREE copy today!



## ... the L-CD is NEW •• Attractive and Improved



## With ALL These Easy-To-Sell Features!

- **CALIBRATED ADJUSTMENT DIAL**—"tune in" the exact draft needed for any heating system.
- **BAKED ENAMEL FINISH**—on damper plate as long-lasting as it's handsome—appeals to your customers.
- **LONG, HEAVY GAUGE PRE-FORMED COLLAR**—complete, ready for quick time-saving installation.
- **SENSITIVE SEALED PIVOTS**—guaranteed to stay clean and friction-free for a long lifetime of service.

**WALKER Manufacturing & Sales Corp., 1730 Penn St., St. Joseph, Mo.**



*Quality Since 1871*

**TURNER**

**NO. 475  
LOW-PRESSURE**

**TINNER'S  
FIRE POT**



Smokeless . . . sparkless . . . sootless! Complete with Turner's exclusive "Carburetor Control" for more perfect combustion; positive flame control for exact heat desired. Construction assembly permits quick, easy accessibility and cleaning. Burner coil is extra-heavy seamless steel tubing; pump is heavy blow-proof brass. Fuel capacity — one gallon. Get details, too, on the Turner Plumber's Fire Pot; Turner's complete line of Blow Trenches; the new Turner line of LP Fire Pots and Trenches. See your jobber . . .

**THE TURNER BRASS WORKS**

SYCAMORE ILLINOIS  
SINCE 1871



*Don't  
take  
half*

**GET ALL THE  
FEATURES**

WITH A

**Pullman**

**FURNACE & BOILER  
VACUUM CLEANER  
and Power Blower**

CONVERTS  
TO POWER  
BLOWER IN  
2 SECONDS

**COMPARE THESE PULLMAN  
FEATURES WITH ANY  
OTHER VACUUM CLEANER**

① Powerful turbine type suction and ② automatic power blower coupling. ③ Balances for one-hand carry and ④ has low, non-tip, center of gravity. ⑤ Auxiliary disposable paper filter and ⑥ NO outside bag to snag or tear.



**OH!**

Pullman Vacuum Cleaner Corp., Boston 19, Mass.

Send information on Boiler & Furnace Vacuum Cleaning.

SIGNED \_\_\_\_\_

COMPANY \_\_\_\_\_

STREET \_\_\_\_\_

CITY \_\_\_\_\_

ZONE \_\_\_\_\_

STATE \_\_\_\_\_

# Guarantee

## Carefree Fuel Supply in Oil Burner Sales

### with combination VENTALARM® GAUGE

Underwriters' Approved



The famous whistling tank fill signal and easy reading gauge in one money-saving unit. Goes on tank as integral part of vent pipe. Signal case takes the place and saves cost of reducer bushing. One less tank opening needed. One item to install instead of three.

Specify tank depth and opening when ordering.

#### "BUTTON-LIFT" INSTALLATION

Lifting the button indicator draws cork arm up close to main shaft for easy installation even in partly filled tanks.



or the

### SCULLY® GAUGE

Underwriters' Approved



A modern convenience in every way. Big figures, adjustable face, jam-proof lever arm, cork float. Accurate service-free operation.

Specify tank depth when ordering.

### and the famous VENTALARM

T. M. REG. U.S. PAT. OFF.

#### WHISTLING TANK FILL SIGNAL

Accurate fuel oil delivery without home entry. Truly automatic fills for the householder. Makes oil supply as clean and convenient as any other fuel.

A variety of models for new and old tanks.

Scully Products are manufactured under U.S. and foreign patents or patents pending.



"Just fill while the whistle blows."

See your regular Supply House.

## SCULLY SIGNAL COMPANY

174 Green St., Melrose 76, Mass.



Canadian Licensee: EMPIRE BRASS MFG. CO., LTD., London, Ontario

we hear that

(Continued)

Wayne heating products. Mr. Wenger's purpose in making the visit was to study American methods of installing and servicing residential heating equipment.

► E. K. STEVENS, vice president and treasurer of the International Exposition Co., has been elected president, succeeding the late Charles F. Roth. He also becomes manager of the International Heating and Ventilating Exposition.



SALES EXECUTIVES of Research Products Corp. discuss sales and merchandising plans at the recent sales conference

► RESEARCH PRODUCTS CORP. recently held a week-long sales executive conference to formulate merchandising plans for the coming months. Principal subject under discussion was the company's washable air filter.

► THE DELAVAN MFG. CO. has developed a display rack to aid its dealers in the merchandising of oil burner nozzles. The rack is made of heavy gage steel and will stock and display 270 nozzles.

► F. G. MIRICK has retired after 51 years of service with F. O. Schoedinger, Inc. At the time of his retirement, Mr. Mirick was vice president of the firm.

► ALSYNITE CO. OF AMERICA has opened its third manufacturing plant. The new plant, located in Paterson, N. J., has 22,500 sq ft of production space.

► CECIL WALTON, Chio district sales manager for U. S. Machine Div., Stewart-Warner Corp., was recently selected by the Indianapolis Sales Executives Council to receive its "distinguished salesman of the year" award.

► A CAMPAIGN to promote the sales of "Dust-Stop" air filters has been launched by the Owens-Corning Fiberglas Corp. Included in the promotional material offered to dealers are window displays, window banners, envelope stuffers, radio and TV spot announcements, sales letters and a sticker to remind customers to change filters.

☆ ☆ ☆

# Manufacturers' Agents

*Are you interested in  
securing additional lines?*

We are occasionally asked by our manufacturer advertisers to suggest the names of manufacturers' agents in various sections of the country whom they can contact in regard to representation of their warm air heating, residential air conditioning and sheet metal products.

If you would like your name listed on our records for inquiries we may receive on your territory, we invite you to write us. There is no charge in connection with this service.

## American Artisan

6 NORTH MICHIGAN AVENUE  
CHICAGO 2 ILLINOIS

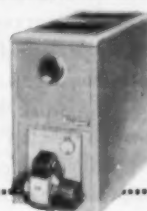
☆ ☆ ☆

# Majestic the line that helps to sell itself!

There's a Majestic matched year-round air conditioner for every requirement, whether it's a small home or a large commercial installation.



Completely automatic oil- or gas-fired units available from 76,000 to 400,000 BTU output . . . upflow, downflow, horizontal flow . . . with cooling units to match.



To make the Majestic line even more complete there's the famous Thulman Chimney with patented flue design that permits zero-clearance installation in one or two story homes because clearance from combustibles as required by the National Building Code is built in. This unit, which may be used with all fuels, can be quickly installed by one man.

And the Thulman fireplace is the packaged fireplace that's scientifically designed for controlled heat radiation. With the clearance built in, the Thulman fireplace is ideal for new construction or in remodeling . . . for use with any face material.



To make your selling faster, easier and more profitable, Majestic sales helps are ready for your use. Write today for Majestic Bulletins—they'll show you how and why the Majestic name can mean more sales for you.



## The Majestic Co., Inc

394 Erie Street, Huntington, Indiana

## appointments . . .

► **KENNETH M. FISHER** as manager of the Dallas district office for Penn Controls, Inc. Consolidated Controls Co., 225 Westlake North, Seattle, has been appointed as warehousing agent covering the Seattle territory.



Kenneth M. Fisher



Earl H. Norling

► **EARL H. NORLING** as manager of sales training and marketing personnel for the marketing department of General Electric Co.'s Air Conditioning Div. Mr. Norling will work with field representatives and distributors to develop programs of selling techniques for home heating and cooling systems, packaged air conditioners and heat pumps. Radio and Appliance Corp., Nashville, has been appointed distributor in the Tennessee area by the company's "Weathertron" depart-

ment. Warberg Bros., Twin Falls, Idaho, will handle retail and wholesale sales of home heating and cooling products in the Twin Falls area for the home heating and cooling department. Also named was the B. M. McDonald Refrigeration Service Co., which will retail home heating and cooling products in the Las Vegas area.

► **JOHN FARRAR** as vice president of Schnurr and Kraemer, Ltd., Kitchener, Ontario, wholesalers of warm air heating equipment. Prior to his recent appointment, Mr. Farrar was sales manager of Morrison Steel Products, Inc.

► **WILLIAM R. MURDOCK** as commercial sales manager of Trion, Inc. Mr. Murdock was formerly regional sales manager with headquarters in the Chicago office.

► **BANKS W. CLARK** as manager of the Oklahoma City sales branch of The Trane Co. New offices of the Oklahoma City branch are at 1710 N. Broadway.

► **THEODORE F. EICHSTAEDT** as assistant manager of the Machinery and Tool Div., Joseph T. Ryerson & Son, Inc. Mr. Eichstaedt was formerly manager of the machinery and tool department at the firm's Chicago plant. He joined the company in 1944.

# Wisconsin BURNERS



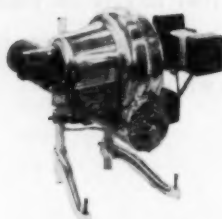
MODEL O



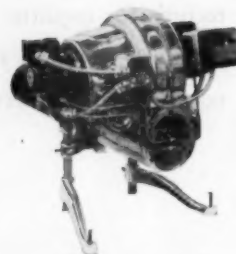
MODEL A



MODEL B-41



MODEL B-51



MODEL B-61

• A complete line. . . with Wisconsin Burners you can offer your customers a choice of 5 sizes. . . from 0.65 G.P.H. to 25.00 G.P.H.

• Every Wisconsin Burner is factory tested under actual firing conditions. Their reputation for quality has made them a leader in the field.

• Available with the famous, efficient Shell Combustion Head.

FOR INFORMATION ON AVAILABLE TERRITORIES, WRITE

## WISCONSIN OIL BURNER CO.

2720 EMIL ST.

MADISON 5, WISCONSIN



# WEBCO

*the portable*

## SHEET METAL BENDING BRAKE



The WEBCO brake bends 20 gauge mild steel — an exceptionally strong — precision unit — compare specifications and construction. Make your own ducts and fittings — Portable.

Write for detailed information.

### HALLMOR INC.

McMURRAY ROAD  
BRIDGEVILLE, PA.

## Convert Gravity Furnaces With A CIRCULATAIRE Bonnet Blower



**CIRCULATAIRE** ELIMINATES COLD ROOMS,  
BALANCES HEAT DISTRIBUTION, SAVES FUEL

CIRCULATAIRE solves the problem of "hard to heat" rooms, boosts warm air quickly through all the heating pipes. CIRCULATAIRE is easily and quickly installed without removing the bonnet. Packaged unit includes motor and fan control. No new sheet metal work required, no changing of cold or warm air pipes, no baffles to be built. The CIRCULATAIRE is rigid, quiet and efficient in operation.

**NOW READY** — New CIRCULATAIRE Sales Aids add effectiveness to selling interview, conserves valuable selling time and increases sales.

A COMPLETELY PACKAGED UNIT  
Nothing for the dealer to furnish except limited amount of labor.



GET THE FACTS TODAY! WRITE...

### CIRCULATAIRE

DIVISION OF CORLETT-TURNER CO.  
1007 S. KOSTNER AVE., CHICAGO 24.



# \$ PROFITS RIGHT NOW \$

with

## Dowagiac's

### DIRECT TO DEALER PLAN

Furnace orders shipped within 24 hours... you profit on each sale... no quotas, no forced inventory... no cash tied-up. Buy like the biggest... beat them on price and quality. It will mean more money in your pocket.



Send today  
for details

**DOWAGIAC STEEL FURNACE CO.**

DOWAGIAC 2, MICHIGAN

it's easy to

## LOWER STACK TEMPERATURES

when you remove soot with

## "CLEAN RIGHT" SOOT REMOVER

Eliminate soot from heating stacks to increase efficiency and lower fuel costs immediately.

Now you can remove large coatings of soot from heating plant and flue pipes. It takes only a few minutes. Simply dust CLEAN RIGHT into the heater to clean the entire system. CLEAN RIGHT is safe since it does not create intense heat. CLEAN RIGHT was developed by Heating Engineers and is recommended by Manufacturers. You need no special equipment to remove soot completely. CLEAN RIGHT does the job without dirt or mess.

CLEAN RIGHT is available in 3 sizes for home use and large drums for commercial plants. There is a package size to fit any requirement. CLEAN RIGHT is economical — 8 to 10 cleanings per 8 oz. can. Only a small amount of CLEAN RIGHT is necessary for an application and the remainder can be safely stored until needed again.

**NON-CORROSIVE — NON-EXPLOSIVE**

"Look for the Broom on the Package" "Clean Right" was formerly called "Clean Sweep" Still the Same Superior Formula

Contact your distributor or write...



**MILLER PRODUCT CO.**

3046 CEDAR ROAD  
LANSING, MICHIGAN

**Make Stronger Fastenings  
this easy way**



**P-K**  
TRADE MARK  
REG. U.S. PAT. OFF.

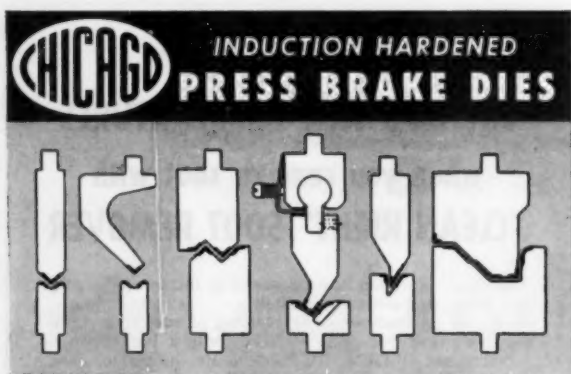
**Hardened  
Masonry Nails**

**DRIVE EASILY** into mortar, cinder blocks, and other soft masonry without pilot holes . . . into pre-drilled holes in harder materials.

**HARDNESS and TOUGHNESS** perfectly balanced . . . they drive in straight to stay tight, even under shock or vibration.

**COST YOU LESS** and are much simpler to use than plugs, expansion bolts, other devices. Samples free . . . try them. Ask your P-K Distributor, or write: Parker-Kalon Division, General American Transportation Corporation, 200 Varick St., New York 14.

**PARKER-KALON®  
FASTENERS**



**CHICAGO** INDUCTION HARDENED  
**PRESS BRAKE DIES**

Heavy lines indicate hardened surfaces

**for greater die life —  
at no extra cost —  
on any make press brake**

Whether it is a simple die for angle bending or the more complex dies for any of the combined bending and forming operations, CHICAGO induction-hardened dies offer bonus performance at no extra cost. Field reports on these dies show better than ten times the useful life of the conventional dies used in press brakes. Get the full particulars on CHICAGO induction-hardened dies for your next press brake job.

Steel Bending Brakes For Over Fifty Years 4901

**DREIS & KRUMP** **CHICAGO**  
MANUFACTURING COMPANY  
7404 S. Loomis Blvd., Chicago 36, Ill.

## appointments

(Continued)

► **RICHARD F. BEATTIE** as chief engineer for the Armstrong Heating Supply Co. Previously Mr. Beattie was with the Chicago office of the Federal Housing Administration as air conditioning and heating engineer.



Richard F. Beattie



Glenn A. Barnes

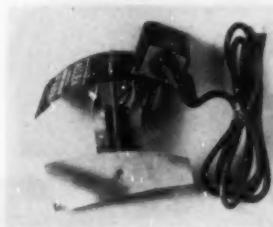
► **GLENN A. BARNES** as general sales manager of Sequoia Mfg. Co. Mr. Barnes will maintain headquarters in the company's offices in San Carlos, Calif. He was formerly sales representative in the southern California territory, in which position he is being succeeded by John S. Padrick.

► **MILTON S. ANGIER** as product manager of heat pumps for the Air Conditioning Div., Westinghouse

IT'S

**NEW NEW NEW**

**ALLEN'S Automatic Booster Fan**



only \$19.95 retail

- Circulates Heat
- Warms Hard to Heat Rooms and Basements
- Quiet . . . Efficient
- Easily and Quickly Installed
- Saves Heating Dollars

**THE ONLY COMPLETELY AUTOMATIC  
BOOSTER FAN**

Built for use in gravity type hot air heating ducts, Allen's Booster Fan can be easily installed in 8, 9 or 10-inch pipe in a few minutes. When mounted, simply plug it into the house current . . . set the control for the most efficient duct temperature . . . and it works automatically, Spring, Fall and Winter. Rubber cushioned throughout, it may be mounted in bedroom pipes without disturbing sleep.

Write for new catalog sheet, price and dealer discounts.

**PARK SHEET METAL SPECIALTIES**

6212 Goodrich Avenue

Minneapolis 16, Minnesota

## appointments

(Continued)

Electric Corp. Mr. Angier joined the company in 1924, and during the past 25 years has served in various sales and managerial positions. He will make his headquarters at Staunton, Va., upon the completion there of the division's new plant.

► **KENNETH F. MULDOON** as sales promotion manager of Thatcher Furnace Co. Previously, Mr. Muldoon was a district sales manager for Eureka-Williams Corp.



Kenneth F. Muldoon



Walter W. Simpson

► **WALTER W. SIMPSON** as vice president in charge of operations, to supervise engineering and production for Sterling Air Conditioning Corp. Prior to his recent appointment, Mr. Simpson was with Servel, Inc.

**DESIGNED AT YOUR REQUEST!**  
**BRAND-NEW DELTA FLOOR LEVEL FURNACE**  
 Installed and Serviced from **INSIDE** the house!

**Labels:** FAN AND LIMIT SWITCH, DRAFT REGULATOR, BUILT-IN OIL FILTER, MASTER RELAY, FLAME DETECTOR, DELTA GUN-BURNER, QUIET TWIN TURBINE FAN, 6" FLUE PIPE OUTLET AT EITHER SIDE, HINGED INSULATED SERVICE DOOR, 4 FOUR-INCH AIR RETURN KNOCKOUTS.

24 x 36 x 31" DEEP  
 80,000 BTU/HR Completely wired and factory assembled

**EASY TO INSTALL—takes 1 hour! EASY TO SERVICE—no need to crawl under the house! Write for details today.**  
**DELTA HEATING CORPORATION**  
 1 COLE ST. TRENTON 8, N. J.

In to stay when you use **P-K**  
TRADE NAME  
 REG. U.S. PAT. OFF.

**Hardened Screwnails**

for fastening  
**SHEET METAL to WOOD**  
**WOOD to WOOD**  
 or other fastenings where you need  
**NAIL DRIVING SPEED with**  
**SCREW HOLDING POWER**

Ask your P-K Distributor for samples and the SCREWNAIL folder, or write:  
 Parker-Kalon Division, General American Transportation Corporation, 200 Varick St., New York 14.

**PARKER-KALON®**  
**FASTENERS**

**NEW** *Beverly*  
**SLITTING SHEAR**

**More Power...**  
*Easier Cutting*  
**Exclusive Design**  
*Cleaner Cuts*  
**Ruggedly Built**  
*last a lifetime*  
**Capacities to  $\frac{3}{16}$ "**

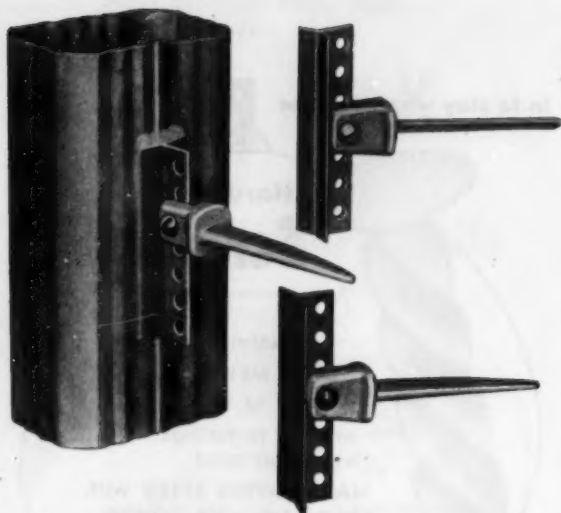
**SS-3  $\frac{1}{8}$ " slitting cap;  
 $\frac{1}{8}$ " trimming;  $\frac{1}{4}$ " x 2" bar capacity**

Get faster, easier slitting and trimming with a new design Beverly "SS" Series Slitting Shear. Rigid, strongly braced frame; compounded linkage and extra strength where needed. Many exclusive features. Write for FREE illustrated Bulletin.

See your Beverly Distributor today.  
 Ask for a demonstration—no obligation.

**Beverly SHEAR MFG. CO.**  
 3020 W. 111th STREET • CHICAGO 43, ILLINOIS





## Save you TIME . . . Save you MONEY! F & F CONDUCTOR FASTENERS

Take less time to put in . . . make a more secure, permanent installation. Fastener is entirely concealed. Pipe stands 1/2" away from wall. Cadmium plated malleable iron drive (flat for bricks, round for wood) bolts to galvanized or copper perforated clip, adjustable for height. Clip is soldered to back of conductor. Write now for details and prices!

**FRANCK and FRIC**  
7109 KINSMAN ROAD • CLEVELAND 4, OHIO

*NOW is the TIME  
to "CLEAN-UP"*

with a

**GRAND RAPIDS FURNACE CLEANER**

Act Now! Get in on this year's cleaning profits.  
Order a Grand Rapids Furnace Cleaner.

**IT'S FAST**—Handles twice as many jobs as the ordinary furnace cleaner.

**IT'S THOROUGH**—High velocity suction completely removes ashes, soot, scale and dirt from every type of heating plant.

**IT'S COMPLETE**—A packaged unit with practical cleaning attachments designed for fast, easy cleaning.

**IT'S PROFITABLE**—The trouble-free operation and speedy service of the Grand Rapids Furnace Cleaner puts extra profits in your pockets.

Send today for complete information about the Grand Rapids Furnace Cleaner.



**DOYLE VACUUM CLEANER CO.**

227 Stevens St., S.W.

Grand Rapids 7, Michigan

## appointments

(Continued)



C. Weston Goode



H. J. Smith

► C. WESTON GOODE as district manager covering the southeastern United States and H. J. Smith as district manager handling the Kansas City sales division for Gustin-Bacon Mfg. Co. Mr. Goode will be in charge of the newly opened district office at 2025 Peachtree Rd., N. E., Atlanta. Mr. Smith has been with the company since 1949 as representative in Louisville and St. Louis. In his new position, he will direct sales in Colorado, Wyoming, Nebraska, Kansas, Oklahoma, Arkansas and parts of Texas, Illinois, Tennessee and Mississippi.

► CHARLES L. BROOKS as assistant to the president of Armstrong Furnace Co. Mr. Brooks joined the company in 1951 as district manager handling the territory including Kentucky and parts of Tennessee, Indiana and Illinois, was later transferred to the district covering Ohio, Michigan and part of Indiana and Illinois. Last April, he became regional sales manager for the southeastern portion of the United States.



G. O. Kuhen



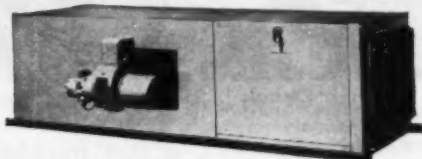
R. L. Kirse

► G. O. KUHEN, former assistant air conditioning service manager of Servel, Inc., as technical assistant to the manager of the air conditioning division. Mr. Kuhen has been with the company for nearly 25 years, has served as engineer, inspection foreman, air conditioning production foreman and field service supervisor. Named assistant service manager of the air conditioning division is R. L. Kirse, formerly a field service representative. Before joining Servel last year, Mr. Kirse was supervisor in charge of air conditioning installation and service in Venezuela for Gulf Oil Corp. The Southside Fuel Oil Co., 3021 St. Augustine Rd., Jacksonville, and Louis N. Picciano & Son, 1204 With-



## QUIET AUTOMATIC OIL FURNACES

### SUSPENDED Or Laydown Air Conditioning FURNACES



#### SPACE SAVER...and a Labor Saver

It comes completely assembled including combustion chamber. For Garages, Service Stations, and Basementless Homes. Made in sizes from 75,000 BTU to 600,000 BTU.

Approved by Leading Oil Companies, Underwriters and Municipalities. WRITE TODAY FOR FULL DETAILS

A PRODUCT OF  
**QUIET AUTOMATIC BURNER CORP.**

J. G. KAVENY, President  
33-35 BLOOMFIELD AVE.

NEWARK 4, N. J.

**DIECKMANN**  
CONDUCTOR  
ELBOWS and SHOES

An **ANGLE** for  
every obstacle!

PLAIN ROUND  
CORRUGATED ROUND  
CORRUGATED SQUARE

Made in 28, 26, and 24 gauge steel hot dipped galvanized after formation. Sizes from 1" to 6". Angles from 10 degrees to 90 degrees.

Also in Copper, Aluminum and Stainless Steel.

Catalog available from your jobber.

**THE FERDINAND DIECKMANN CO.**

ESTABLISHED 1871

CINCINNATI 22, OHIO

P.O. Station B

## YOUR BEST INVESTMENT LEVER **WHITNEY** PUNCHES

PORTABLE  
HAND  
OPERATED  
PUNCHES AND  
SHEARS.  
A TOOL FOR  
EVERY  
PURPOSE.

LEADERS  
SINCE 1907

Please Write  
Today for  
Literature

See Your Jobber.

### NO. 91 BENCH PUNCH



Punches  
Angle Iron  
 $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{1}{4}$ "  
Channel Iron  
 $2\frac{1}{2}$  inch Flange  $\times$   
 $\frac{1}{4}$  inch Web

Capacity  
 $\frac{1}{2}$  inch hole through  
 $\frac{1}{4}$  inch iron,  $\frac{3}{4}$  inch  
hole through  $3/16$   
inch iron, 2 inch hole  
through  $\frac{1}{2}$  inch iron.  
Also No. 92 with 10"  
depth of throat, No.  
93 with 18" depth of  
throat and No. 94  
with 24" depth of  
throat.

W.A.  
**W**

**WHITNEY MFG. CO.**

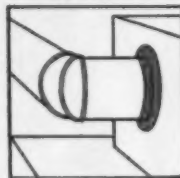
636 RACE ST. ROCKFORD, ILL.

## ANGLE RINGS ROLLED TO SPECIFICATION!



#### SMOKE STACKS

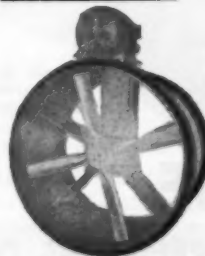
You can rely on our ability to furnish Leg Out **ANGLE RINGS** correctly rolled to specified size for use in smokestack construction. Bolt or rivet holes are accurately punched and spaced for quick and easy assembly.



#### VENTILATING DUCT LINES

We also roll Angle Rings in all sizes for round duct connections in air conditioning, heating and ventilating systems. All Rings correctly made to size—with a true circle and 90° angle. Furnished with or without bolt holes.

#### EXHAUST FANS



Angle Rings save time and money in the assembly of fans of all types. Provides a solid and firm reinforcement for fan units as illustrated. Built to fit your particular assembly in any quantity.

Write for list of stock sizes and discounts—also our illustrated circular describing our complete fabricating service.

**NATIONAL METAL FABRICATORS**  
2140 S. Sawyer Ave. Chicago 23, Ill.

**YOUR DOLLAR GOES FARTHER**  
... with **RELIABLE GAS PRODUCTS**  
**TOP QUALITY at LOW COST!**



Industrial and Laboratory  
Bunsen Burners

**COMPARE** • QUALITY  
• EFFICIENCY  
• PRICE  
• GUARANTEE

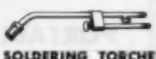
RELIABLE offers "extra value" in a complete and versatile line of the very highest quality gas appliances. This quality is assured by the testing of every appliance thoroughly before it leaves the factory.

WRITE FOR COMPLETE CATALOG:

**RELIABLE GAS PRODUCTS COMPANY**

419 H Avenue, NW Cedar Rapids, Iowa

A MORE COMPLETE  
LINE THAN EVER!



SOLDERING TORCHES



DRILLED PIPE  
BURNERS



BENCH FURNACES



RING BURNERS



STRAIGHT OR ANGLE  
HAND TORCHES

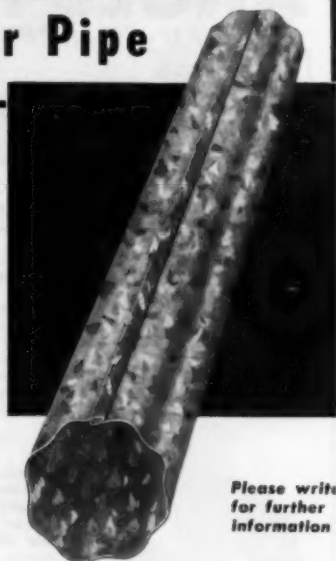


MELTING POTS

**La Crosse Gutters and  
Conductor Pipe**

**La Crosse**  
**"Easy Slip"**  
**Eaves**  
**Trough**

**Style "K"**  
**Box Gutter**



Please write  
for further  
information

**LA CROSSE**  
**STEEL ROOFING & CORRUGATING CO.**

P.O. BOX 837

LA CROSSE, WIS.

**appointments**

(Continued)

erill St., Endicot, N. Y., have been named distributors to cover parts of Florida and New York, respectively.



Robert E. Dietrick



Thomas J. Hessert

▶ ROBERT E. DIETRICK as sales representative in central Indiana for Inland Steel Products Co. He will work out of the Chicago branch. Representing the company in the Philadelphia area will be Thomas J. Hessert, replacing M. R. Greene who recently became manager of the Buffalo branch office.

▶ KEPS ELECTRIC CO., 5000 Baum Blvd., Pittsburgh, as distributor of heating and air conditioning equipment for Timken Silent Automatic Div., Timken-Detroit Axle Co. Territory covered includes western Pennsylvania, eastern Ohio and the state of West Virginia.

▶ THE EASTERN STATES SUPPLY CORP., with offices at 172 Chestnut St., Springfield, Mass., and 45-30 37th St., Long Island City, as manufacturer's representative and distributor for J. P. Glasby Mfg. Co., Inc. Territory to be served includes New England, New York State and Long Island.

▶ JOHN CRIM as sales engineer for Roberts-Gordon Appliance Corp. Mr. Crim, formerly assistant works manager, has been with the company since 1949.

▶ ROBERT HUGHES as factory representative handling ventilating hoods for Stanthony Corp. in the Atlantic states. Mr. Hughes' headquarters will be at 101 N. 33rd St., Philadelphia. He will be responsible for all distributor appointments on the East Coast.

▶ FRANK HARBIN, Baltimore, as sales representative handling the Virginia and North Carolina territories for the accessories division of Wm. Steinen Mfg. Co. Other sales representatives recently appointed by the company are Ben D. Waller, Charlotte, N. C., to cover South Carolina, Alabama and Georgia; Howard A. Weller Co. to serve the states of Washington, Oregon, Idaho and Montana and the provinces of British Columbia and Alberta, Canada; and B. L. Rushton, who will cover western Pennsylvania and the state of West Virginia.

For removing a **LARGE VOLUME**  
of Fumes or Air at **HIGH VELOCITY**



*allen*  
**VERTICAL  
DISCHARGE  
FAN**

Whenever you face the problem of discharging fumes or vapors through a roof ventilator so that they will not short circuit back through building openings, you'll find the solution in this new Vertical Discharge Fan. It is designed especially for industrial applications that require the removal of a large volume at high velocity. The "VD" roof fan is fabricated of zinc-coated iron sheet with welded construction throughout. Automatic wing dampers open with air blast, close weathertight when not operating. The "VD" is available as direct drive with motor mounted inside air stream or as "VDR" with motor mounted outside throat of ventilator. Either type is available in a wide range of capacities and sizes.

Write for catalog on complete line of roof ventilators.



**ALLEN COOLER &  
VENTILATOR INC.**  
ROCHESTER, MICH.

Roof Ventilators for Every Commercial and Industrial Need



Standard in the field for nearly 40 years. THARCO stays put! — No shrinking, cracking or checking. Now available in either black or light gray in 1-pound cans to 350-pound drums. Order from your jobber.



**The ARMSTRONG COMPANY**

241 S. Post Street

Detroit 17, Michigan

**FLANGES THE DUCT**  
*with Amazing Speed!*

Less than 5 seconds on short  
and lighter pieces . . .  
Slightly longer on bulkier pieces

**MAKES PERFECT  
DRIVE-CLEATS TOO!**

The **ONLY** tool that does both.  
A complete drive cleating tool . . .  
no set-up time . . . no adjustments.  
Handy to take out to the job when  
not needed in the shop. Turns idle  
time into production time. Flanges  
any square duct up to 20 gauge.  
Quickly pays for itself in time,  
material and labor savings.



No. 12 Smith's Cleat Bender

(12" wide) . . \$46.20\*

No. 18 Smith's Cleat Bender

(18" wide) . . \$72.60\*

\*F.O.B. Waukegan, Illinois  
Prices subject to change  
without notice

**PERFECT**

**DRIVE CLEATS**

fit the duct without

the use of a screwdriver.

**TREMENDOUS SAVINGS**

in erection time and labor.

**R. E. SMITH**

1124 Elizabeth Avenue • Waukegan, Illinois

**Cut Installation Costs!**  
**One hammer blow**  
**permanently rivets**



**STANDARD  
E-Z-ON  
DAMPER  
REGULATOR**

E-Z-ON Damper Controls are easily, quickly installed to save you time and money. E-Z-ONS lower initial cost offers you additional savings and extra profits. Start saving money now. . . Call your jobber today!

**LEADING JOBBERS STOCK "EZ-ONS"**

In Canada — THERMIDAIRE CORP. LTD. Toronto

**M. A. GERETT CORP.**

724 WEST WINNEBAGO STREET, MILWAUKEE 5, WISCONSIN



## 4 Real Reasons why 370 SPECIAL RED OXIDE PAINT

Can Cut Your Sheet Metal  
Painting Costs

1. More coverage per gallon
2. Easy, fast application
3. One coat covers
4. Faster setting-up time

Yes, 370 Special can save you money. Users report it covers more than five squares per gallon . . . sets up in 4 or 5 hours. It pleases your customers because it *really protects* against corrosion. Also available in green, blue, gray, brown and aluminum. ORDER 370 SPECIAL NOW FROM YOUR DISTRIBUTOR, or write for complete details and prices.

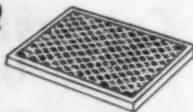


**THOMPSON & COMPANY**

1085 Allegheny Ave., Oakmont, Pa.

Established 1847

## Now! A Reliable FILTER GAUGE that SELLS ON SIGHT!



FOR  
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VENTILATING,  
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UNITS



**\$5.95**

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LIBERAL  
DEALER'S  
DISCOUNT

- INCREASES PROFITS
- EASY TO INSTALL
- SELF-CONTAINED
- SELLS MORE FILTERS
- CUTS EMERGENCY CALLS
- USES NO ELECTRICITY

ASK YOUR JOINER OR WRITE FOR LEAFLET #1



**BACHARACH INDUSTRIAL INSTRUMENT CO.**

FG-2a

7301 PENN AVENUE • PITTSBURGH 8, PA.

## WHAT ASSOCIATIONS ARE DOING —

(Continued from page 41)

Blind Bogey prizes were won by: W. C. Henders, W. Pizek, J. A. Anderson, J. C. Johnson and H. Menke. George Kasle was the winner of a prize awarded non-golfers.

### Active Texas Group Promotes A. C.

THE FORT WORTH, TEX., chamber of commerce dedicated a recent issue of its official magazine to the "ever-growing air conditioning industry of Fort Worth." The chamber points out that of the total 175,000 housing units in the city, more than 65,000 have some form of air conditioning, ranging from evaporative coolers to complete central air conditioning systems. It is also noted that in 1953, 364 central air conditioning systems having a total tonnage of 1762 tons—an average of 4.84 tons per unit—were installed in homes in the Fort Worth area.

Serving this growing industry, the magazine says, through the development and promotion of higher standards of design and installation, is the Fort Worth Air Conditioning Association. This group, founded in 1937 by six local air conditioning contracting firms, today numbers 18 active member firms and 11 associate members. It is headed by W. I. Spitzer, president. Purposes of the association are to promote the interchange of information and technical data concerning air conditioning among members; to provide the general public with correct information on the subject; to promote general standards of design and installation of air conditioning systems correctly engineered for existing conditions and to guard against inadequate and improper installations; and to encourage application of high ethical standards in the industry.

Literature recently prepared by the association for consumer distribution includes a circular presenting its code of ethics and a folder detailing what goes into the charges made for competent service, which covers such items as costs for personnel, truck operation and maintenance, travel time, rent, and other operating expenses that contribute to a company's efficiency.

### Chicago Group Meets for Picnic

THE FURNACE, AIR CONDITIONING and Sheet Metal Institute, Chicago, held its 23rd annual picnic on August 1st. Ray Guenther, picnic chairman, welcomed the contractor members of the association, the ladies of the auxiliary and children and friends of members as he outlined the program planned for the day-long event. The program consisted of games for the children, "Bingo" and a thread the needle contest for the ladies, and horse-shoe pitching and baseball for the men. For everyone the pie eating contest became the highlight of the day. All of these events contributed much to the enjoyment of a pleasant day for 125 people.



An **EXTRA SALE—A GOOD PROFIT**  
from this **LABOR SAVING**  
**HOME PROTECTION**

**Snap-On**

**GUTTER  
GUARDS**

FITS ALL STYLES  
OF GUTTERS



**KEEP LEAVES AND BIRDS NESTS OUT**

of gutters. No clogging of down spouts and sewers

**NO MORE DANGEROUS LADDER CLIMBING**

SNAP-ON is permanent — leaves blow away.

**EASILY INSTALLED**

tucks under shingles — aluminum moulding snaps on to lip of gutter.

**ATTRACTIVELY PACKAGED — 48 — 2' lengths**  
to carton. A labor-saving device for every home owner — and a nice profit for you.

See Our Adv. in Sept.-Oct. House & Garden

Write for literature — prices — discounts and name of nearest distributor.

**LOCKHART MFG. CORP.**  
6350 E. Davison • Detroit 12, Michigan

## "CORRECT PRACTICE in OIL HEATING"

NOW AVAILABLE TO YOU!

A complete reprint of the valuable series

by J. J. Mirabile

This practical series covers every angle of oil burner work, including arrangement of shop . . . stocking of parts . . . record-keeping . . . installation procedures . . . the handling of crews . . . how to make heating surveys . . . how to size combustion chamber . . . how to install thermostat . . . how to start the burner . . . how to use testing instruments . . . and how to operate a service department. It contains, as well, a complete list of causes and cures of oil burner troubles that will serve as a reliable guide in making service calls.

Every shop handling oil burner jobs should own this book. Full size, 8½ by 11 inches — 57 pages of practical helps. Send \$1.00 for a copy to the address below.

**KEENEY PUBLISHING COMPANY**

6 No. Michigan Avenue

Chicago 2, Ill.

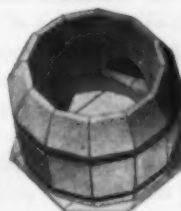


I give my customers  
the **BEST!**

**The Instant-Glo**  
CUSTOM-BUILT INSULATING BRICK  
**COMBUSTION CHAMBER**



**STANDARD ROUND TYPE**  
for Boilers  
and Cast Iron Furnaces  
Sizes up to 2.0 GPH



**ROUND "A" TYPE**  
Specially Designed for  
Steel Furnaces  
(Can be used on any job where  
round chamber is desirable.)  
Sizes up to 1.75 GPH



**"NARROWBOY"**  
for Narrow Boilers  
and Furnaces  
Sizes up to 5.0 GPH  
Write for new complete  
specification sheet

**BOSTON MACHINE WORKS COMPANY**

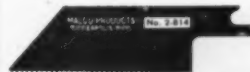
Oil Heating Supplies Division, Manufacturers, Lynn, Mass.

## Use The New **Malco** **HEAVY DUTY** **SAWGUN BLADES**

**SAWGUN "HD" BLADES** are Guaranteed to Satisfy

They are thicker than standard, are flexible and cut through all wood, plaster and imbedded nails faster and with less bending and breaking than any other blade of their type. They properly fit the major group of good saws now on the market.

No. 3-HD priced each in  
lots of 10—29c, 50—27c,  
100—25c & 250—23½c.  
(See Jobber)

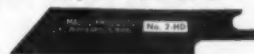


B-14 tooth  
Blades  
for  
Baseboard  
& Flooring

NEW size No. 3-HD is 4¼" long, cuts through 4" board and will do about 90% of all roughing in work. You'll like it better and save money using it.

No's 2-3 & 4 Heavy Duty Blades are available in both 10 & 8 teeth per inch.

3½ & 6" HD Blades



Complete Line of 21 Blades, Sheet Metal Tools and Metal Products stocked by jobbers throughout U.S.A. and Canada.



See Your Jobber  
or Write Today To

**Malco**

**PRODUCTS**

4224-26th Avenue So.  
MINNEAPOLIS 6, MINNESOTA

## VENTING GAS HEATERS —

(Continued from page 65)

with an insulated and approved vent. A masonry chimney is apt to absorb so much heat from the vent gases emitted by gas appliances that the temperature inside the chimney often falls below the dew point. Hot vent gases would cause little if any damage to the masonry chimney, but when they are cooled below the dew point, considerable damage may occur as a result of the condensed vent gas products. Damage of this sort usually is caused by the mixture of condensed vent gas products with an exceedingly small amount of sulphur products, forming a sulphurous or sulphuric acid.

This acid attacks the binder of the mortar, leaching it out and creating leaks. The high vapor content of the vent gases within the cold chimney provides a continuous source of moisture which passes through the disintegrated mortar. On the room side of a chimney so damaged, the seepage shows up as water stains. Damage is always from the inside to the outside. When evidence appears on the outside of the flue you know that the chimney has been damaged throughout.

A satisfactory way to prevent such a condition or to stop further damage is to insert a double wall vent within the chimney, using an otherwise unused flue as a passageway. An insulated vent like this within the chimney will

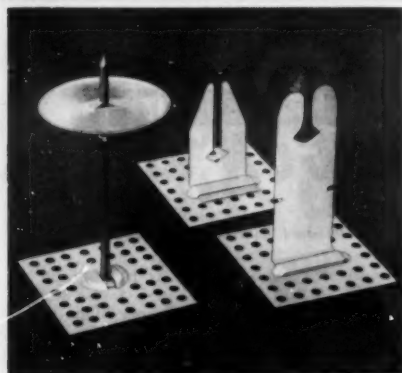
act as an independent vent, separate and apart from the chimney itself. The vent gases from a gas appliance will then float up and out, for the insulated vent keeps them warm.

## PRACTICAL SAFETY DEVICES —

(Continued from page 71)

insurance. The prevention of accidents is an ever challenging objective in our shop."

Mr. Mantei went on to describe several safety devices his company has developed. One of these is designed for an 8 ft rolling machine that tended to coast about 12 in. beyond the shutoff point. Mr. Mantei obtained a small brake shoe which he installed on a special pulley attached to the electric motor shaft. The brake was operated by a solenoid switch that was controlled by a short stroke limit switch located on the right side of the rolling machine bed. The limit switch was operated by a piece of 1/8 in. airplane cable fastened to the left side of the bed. Any pressure that moved the cable more than 1 in. toward the rollers would operate the safety limit switch which immediately set the brake on the motor shaft and opened the electric circuit to the motor. The rollers were stopped within 1 1/2 in. of the point where they were at the time the safety switch was operated, thus greatly reducing the possibility of injury to any worker's hands.



## Modern Insulating Materials Need Stic-Klip For Fast, Economical Application

Fiberglas, air cell board, mineral wool sheets, cork, magnesite — there's a Stic-Klip and method of application for almost every insulating material. The Stic-Klip method is perfectly adapted for flat, round, corrugated or unusually-shaped surfaces, either masonry, wooden or metallic. Eliminates drilling, puncturing metal and provides a permanent bond. Stic-Klip applications have been extensively used to insulate —

Commercial and Industrial Buildings  
Heating, Ventilating, Air Conditioning and Industrial Processing Equipment  
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Write Dept. AA for illustrated booklet on any of these durable applications of Stic-Klip.

**Stic-Klip®**

MANUFACTURING COMPANY, INC.  
50 Regent Street, Cambridge 40, Mass.



## ORNAMENTS STAMPINGS & SPINNINGS

Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW.

**MILLER & DOING**

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BROOKLYN, N. Y.

## ALLEN SODER-FLUXES FOR STRONGER JOINTS

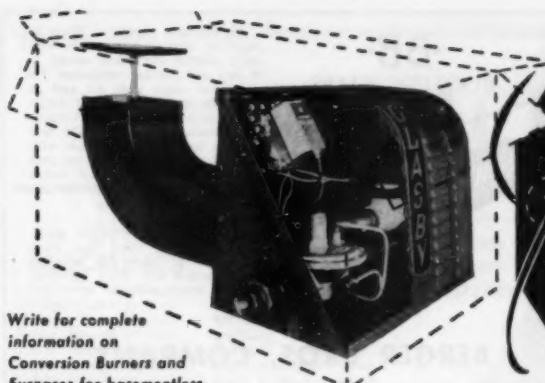
For Soldering — Brazing — Welding



Write us  
today for  
Soldering  
Ideas—FREE

You can get a complete line of SODER-FLUXES from Allen for soldering, brazing and welding all metals.

**L. B. ALLEN COMPANY, INC.**  
6702 Bryn Mawr Chicago 31, Ill.



Write for complete information on Conversion Burners and Furnaces for basementless and semi-basement homes.

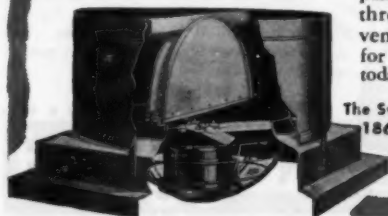
## GLASBY GAS CONVERSION BURNER

A package unit that will convert heating units without expensive construction or follow-up service calls. Quick profit-maker requiring no heavy investment. Factory assembled, tested and guaranteed. Models cover 85,000 to 300,000 BTU's.

J. P. **GLASBY** MFG. CO., Inc.  
Belleville 9, N. J.

## Swartwout Whirlout for powerful low-cost ventilation

You can literally *throw* heat and fumes out of factory workrooms with this economical, simplified "straight-through" powered ventilator. Write for Bulletin 346J today.



The Swartwout Company  
18615 Euclid Avenue  
Cleveland 12, Ohio

## ADAMS

Clean-Out Door

(Cast Iron)

Sizes: 5x7 ins.

to 30x24 ins.



Buy Adams Known Quality

## THE ADAMS COMPANY

BRIDGE STREET • Established 1883 • DUBUQUE, IOWA

## REPAIR PARTS FOR

STOVES, OIL STOVES, FURNACES AND BOILERS  
... REPAIR SERVICE ON A.P. CONTROLS

— Distributors of —

## HEATING & AIR CONDITIONING SUPPLIES

Asbestos Paper - Pipe Covering - Dust Insulation

INSULATION FOR ALL NEEDS

## A. G. BRAUER SUPPLY CO.

THE COMPLETE HEATING SUPPLY HOUSE  
2100 WASHINGTON AVE. ST. LOUIS 3, MO.



CARL METZ, builder of fine homes in suburban Phila. says: "I put Patco Air Baseboard in my developments because it's the perfect diffuser for warm and cool air and is economical to install. It has many other features which help sell my homes . . . pleasing appearance, no drafts, noiseless operation and it eliminates smudges and streaks on walls."

Write today for complete details on the benefits Patco Air Baseboard offers you.

PATCO MFG. CO.  
231 N. Broad Street,  
Phila. 6, Pa.

**PATCO**  
**AIR BASEBOARD**  
THE WALL RADIATES HEAT



MADE IN U.S.A.

## MORE Rigid... LESS Cost

ONE PIECE  
BLOW PIPE ELBOW



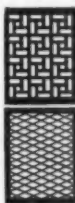
• HOODS • BALL JOINTS • FLOOR SWEEPS  
• BLAST GATES • STAMPED AND ROLLED ANGLE RINGS

Cheaper and stronger than the ordinary pieced elbow, KIRK & BLUM'S One-Piece Elbows are rolled into a tube, then crimped on an exclusive machine to form a super tight, rigid elbow. These and other blow pipe parts, made in production quantities, are superior, cost less than the ordinary kind. Made in light to heavy gauges, from 3-inch to 14-inch diameter. Write for literature and prices.



Ball Joints  
Any Size

THE KIRK & BLUM MANUFACTURING CO.  
3180 FORRER AVE. • CINCINNATI 9, OHIO



## Look Better — Last Longer

Superior workmanship and finish in heavy-gauge metal assures installations of lasting beauty. Most designs stamped in any thickness, up to one-fourth inch, from any metal. Catalog No. 36 illustrates all designs and gives complete working data. Free on request.

**Diamond Manufacturing Co.**  
Box 34 Wyoming, Pa.

Sales representatives in all principal cities



MANUFACTURERS OF

# FURNACE PIPE AND FITTINGS,

Prefabricated Ducts,  
also conductor pipe, eaves  
trough, drip edge, rake strip, etc.

THOR METAL PRODUCTS CO., INC.

Box 118 Eastwood Station Syracuse, N. Y.



## BB- ROOFING CLIPS



For fastening Corrugated Sheets to angle or channel iron. Made with ample strength but narrow enough to fit into any standard corrugation. On jobs where angle irons are used as framework every other line of angles should be reversed to prevent corrugated sheets from shifting. The hole in sheet for rivet can be made with rivet set or hammer alone as the rivet is fastened in the clip and backed up by angle as shown in sketch. Send for sample.

The Clip is made of 12 gauge steel,  $\frac{5}{16}$ " wide, round edge. Rivet extends  $\frac{5}{16}$ " above top of clip. Also furnished with rivets projecting  $\frac{1}{2}$ " for heavy roofing.

Manufactured by

### BERGER BROS. COMPANY

229-237 Arch Street PHILADELPHIA 6, PA.

## Elgo Ventilating Specialties

### EXTRAORDINARY AUTOMATIC SHUTTER



You'll like the "Elgo" because of its exceptionally snug fit which keeps out rain, snow and insect pests. And you'll like it because it is exceptionally sensitive to air currents, offering less resistance to fan pressure. Sizes from 12" to 72" square — also rectangular.

Write for circular and prices

"ELGO" TYPE  
AUTOMATIC SHUTTER  
Front View (Open)

ELGO SHUTTER & MANUFACTURING CO.  
2738 W. Warren Detroit 8, Mich.

Free CATALOG

## FOR PERFECT SOLDERING

### and GREATER PROFITS



in less time use Rubyfluid, the fast acting easy-to-use soldering flux that wets out freely, properly conditions metal for a strong union. No objectionable or harmful fumes. See your jobber or write direct for special \$1.00 offer.

RUBY CHEMICAL CO.  
74 S. McDowell St. Columbus 8, Ohio

# Rubyfluid

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**Classified Section: Rates for classified advertising are 12 cents for each word, including heading and address. One inch \$6.00. Count seven words for keyed address. Minimum \$2.00 for each insertion. Cash must accompany order.**

### situations open . . .

**DISTRICT MANAGERS WANTED** — Rapidly expanding sales program has created sales openings for several men. We want men experienced in franchising and working with heating equipment dealers. Liberal compensation plan consists of salary, commission and bonus in addition to traveling expenses. Combustion Division The Steel Products Engineering Company, Springfield, Ohio.

**SALES EXECUTIVE** — Young man with proven sales record desires position which will allow for permanent residence in St. Petersburg, Florida. Past experience selling to executives and engineers of manufacturers and distributors in the air conditioning, heating, plumbing, refrigeration and ventilating industries; such products as electrical controls, pressure and temperature instruments, gas and oil furnaces, and package air conditioning equipment. Full resume, photo and photostats of letters of recommendation available on request. College graduate with additional engineering training. Address Key 971, American Artisan, 6 North Michigan Avenue, Chicago 2, Illinois.

### agents wanted . . .

**MANUFACTURER'S AGENTS WANTED** — Well known manufacturer of heating accessories has territory opening for Oil Burner Filter. Write Key 972, American Artisan, 6 North Michigan Avenue, Chicago 2, Ill.

### lines wanted by mfr's. agent . . .

Do you have full coverage in the profitable Rockford-Freeport (Illinois), Beloit, Janesville, Madison (Wisconsin) markets? Salesman with proven pre and postwar sales record will really merchandise your residential oil and gas heating and cooling lines, as well as engineer and sell commercial and industrial heating and cooling. This is an opportunity to get top-flight representation. Address Key 970, American Artisan, 6 North Michigan Avenue, Chicago 2, Ill.

### wanted . . .

**WANTED** — Used 36-inch hand power shears for light gauge sheet metal work. Prefer finding one in this area. C. E. Payne, 427 Trowbridge St., Allegan, Michigan.

. . . are you looking around for items or personnel? A simple classified advertisement here will help quickly, at low cost.

## What are the facts about CANCER OF THE LUNG . . . ?

JUST 20 YEARS AGO, in 1933, cancer of the lung killed 2,252 American men. Last year, it killed some 18,500.

**WHY THIS STARTLING INCREASE?** Our researchers are finding the answers as rapidly as funds and facilities permit—but there isn't enough money.

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**THESE ARE JUST A FEW** of the reasons why you should contribute generously to the American Cancer Society. Please do it now! Your donation is needed—and urgently needed—for the fight against cancer is everybody's fight.

**Cancer**  
**MAN'S CRUELEST ENEMY**  
**Strike back—Give**  
**AMERICAN CANCER SOCIETY**



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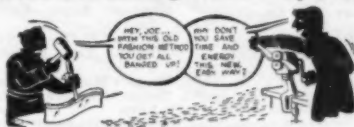
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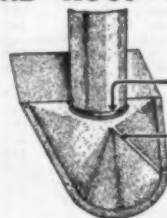
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## INDEX TO ADVERTISERS

A-J Register Co., The	*	Delco Appliance Div., General Motors Corp.	*	Little Giant Vaporizer Co.	*	Sall Mountain Co., The	9
A-Mfg. Co.	125	Delco Motors Corp.	*	Lockformer Co., The	9	San Angelo Foundry & Machine Co.	*
A-P Controls Corp.	219	Delco Products Div., General Motors Corp.	158	Lockhart Mfg. Corp.	215	Schaefer Brush Mfg. Co.	176
Acme Roof Jacket Co.	217	Delta Heating Corp.	209	Loward Mfg. Co.	*	Scully Signal Co.	204
Adams Co., The	126	Detroit Controls Corp.	37	Maid-O'-Mist, Inc.	93	Sequoia Mfg. Co.	99
Adelta Mfg. Co., Inc.	*	Diamond Mfg. Co.	217	Majestic Co., Inc., The	181, 205	Servel, Inc.	*
Advance Furnace Co., The	127	Dickman Co., Ferdinand, The	211	Malco Products	215	Shana Mfg. Co.	162
Aerolin Corp.	177	Dowagiac Steel Furnace Co.	207	Marley Co., The	*	Skutumpah Mfg. Co.	204
Air Control Products, Div. of the Air Conditioning Co.	194	Doyle Vacuum Cleaner Co.	219	Marshalltown Mfg. Co.	192	Smith, R. E.	213
Air Control Products Inc.	*	Dreis & Krump Mfg. Co.	208	Maxitrol Co.	121	Sonoco Products Co.	197
Inside Front Cover	131	Duc-Pac Div., Swett Bros., Inc.	201	Meyer & Bro. Co., F.	121	Southern Mist Products Co.	145
Air Devices, Inc.	198	Duro-Dyne Corp.	180, 181	Meyer Furnace Co., The	13	Standard Stamping & Perforating Co.	23
Air Filter Corp.	137	Eigen Mfg. Corp.	122	Midco Register Corp.	13	Steinen Mfg. Co., Wm.	49
Ajair Furnace Fitting Co., Div. Cincinnati Sheet Metal & Roofing Co.	*	Elgo Shutter & Mfg. Co.	218	Mid-Continent Metal Products Co.	189	Sterling Air Conditioning Corp.	159
Allen Co., Inc., L. B.	216	Emerson Elec. Mfg. Co., The	136	Miller Products Co.	207	Stewart-Warner Corp., U. S. Machine Div.	216
Allen Cooler & Ventilator Inc.	213	Evans Corp., The George	155	Milwaukee Electric Tool Corp.	80	Stic Klip Mfg. Co., Inc.	216
American Air Filter Co., Inc.	31, 165	Excelsior Steel Furnace Co., The	195	Milwaukee Gas Specialty Co.	46, 47, 79,	Stueck, Inc., W. Whitney	216
American Brass Co., The	101	Fallington Mfg. Co.	187	Minneapolis-Honeywell Regulator Co.	80	Sunbeam Air Conditioner Div., American Radiator & Standard Sanitary Corp.	48, 49
American Radiator & Standard Sanitary Corp.	*	Field Control Div. of H. D. Conkey & Co.	*	Modern Materials Co.	141	Sundstrand Eng'g. Co.	3
Anchor Post Products, Inc.	135	Follansbee Steel Corp.	210	Modine Mfg. Co.	141	Sundstrand Machine Tool Co.	199
Anemostat Corp. of America	38	Franc & Eric	179	Morey, Dan	90	Hydraulic Div.	3
Armco Steel Corp.	*	Galvan Mfg. Co.	179	Morrison Steel Products, Inc.	195	Sun-Ray Burner Mfg. Corp.	199
Armstrong Co., The	213	General Automatic Products Corp.	140	Morse-Smith-Morse, Co., The	85	Surface Combustion Corp.	*
Armstrong Furnace Co.	139	General Controls Company	179	Mueller Climatrol Division of Worthington Corp.	85	Superior Furnace & Mfg. Co.	168
Auer Register Co., The	163	General Electric Co., 14, 15, 120	172	National Engineering & Mfg.	*	Swartwout Co., The	217
Auto-Flo Corp.	33	Gerrett Corp., M. A.	217	National Grille & Register Co.	184	Synecomatic Corp.	5
Automatic Humidifier Co.	*	Gilbert & Barker Mfg. Co.	217	National Lock Company	211	Tecumseh Products Co.	146
Bacharach Industrial Instrument Co.	214	Glasby Mfg. Co., Inc., J. P.	191	National Metal Fabricators, Inc.	*	Thatcher Furnace Co.	*
Barber-Colman Co.	26	Glass Fibers, Inc.	36	National Super Service Co., Inc.	*	Thermo-Base Div., Gerwin Industries Inc.	169
Barber Gas Burner Co.	183	Glycolator Div., Iron City Chemical Co.	191	Niagara Furnace Div., Forest City Foundries Co., The	36	Thompson & Co.	214
Barnebey-Cheney Company	160	Greenheck Bros. Mfg. Co.	191	Niagara Machine & Tool Works	149	Thor Metal Products Co., Inc.	218
Beckett Corp., R. W.	218	Gustin-Bacon Mfg. Co.	207	Norge Heat Div., Borg-Warner Corp.	10	Thor Tool & Die Co.	*
Berger Bros. Co.	124	Hallmor Inc.	24	Norman Products Company	170	Timken Silent Auto. Div., Rockwell Spring & Axle Co.	16, 17
Bergers Mfg. Div., Republic Steel Corp.	142	Hall-Nayes Furnace Co.	166	Nu-Way Corp.	10	Titus Inc.	16, 17
Bethlehem Steel Co.	185	Hart & Cooley Mfg. Co.	11	Ohio Valley Hardware Co., Inc.	170	Torideith Div., Cleveland Steel Products Corp.	*
Bett-Marr Manufacturing Co.	209	Henry Furnace Co., The	153	Oil Eqt. Mfg. Corp.	44	Trade-Wind Motor Fans, Inc.	203
Beverly Shear Mfg. Co.	219	Herbst Products Co.	143	Olsen Mfg. Co., C. A., The	103	Turner Brass Works, The	203
Birks Mfg. Co.	215	Hussey & Co., C. G.	97	Oran Co., Inc.	*	Tuttle & Bailey, Inc.	20, 22
Boston Machine Works Co.	174	Illinois Iron & Bolt Co., Freeman Heating Div.	123	Owens-Corning Fiberglass Corp.	103	Typhoon Air Conditioning Inc.	*
Brands Company	147	Independent Register Co., The	32	Packard Elec. Div., General Motors Corp.	144	United States Register Co.	117
Brand Supply Co., A. G.	217	Ingersoll Steel Div., Borg-Warner Corp.	*	Parker-Kalon Div., General American Transportation Corp.	138, 208, 209	United States Steel Corp.	114, 115, 129, 25
Bremil Mfg. Co.	*	Inland Steel Co.	18	Park Sheet Metal Specialties	208	U. S. Steel Supply Div., United States Steel Corp.	129
Brundage Co.	*	Inland Steel Products Co.	159	Patco Mfg. Co.	217	Universal Diffuser Corp.	161
Bryant Heater Div., Affiliated Gas Equipment, Inc.	164	Insto-Gas Corp.	219	Patten Co., J. V.	190	Utility Fan Corp.	161
Burt Mfg. Co., The	*	International Heater Co.	219	Peck, Stow & Wilcox Co., The	178	Van Packer Corp.	40
Carey Electronic Engineering Co., Metal Wool Div.	12	International Nickel Co., The	*	Peerless Electric Co., The	*	Viking Air Conditioning Corp.	132
Carnes Co., W. P.	193	Iron Fireman Mfg. Co.	*	Peerless Furnace & Foundry, Inc.	*	Vyke Mfg. Co.	*
Carrier Corp., Outside Back Cover	219	Jackson & Church Co.	*	Penn Controls, Inc.	87	Walker Mfg. & Sales Corp.	202
Central-West Machinery Co.	167	Janitrol Div., Surface Combustion Corp.	171	Penn Ventilator	173	Wales-Strippitt Corp.	189
Century Electric Co.	29	John-Manville	186	Perfection Stove Co.	128	Wallace Co., William	189
Century Eng. Corp.	30	Johnson Co., S.	219	Petro	201	Washington Steel Corp.	42
Char-Gale Mfg. Co.	7	Juniper Ladder Shoe Co.	219	Premier Co.	201	Waterbury Waterbury Co., The	42
Chase Brass & Copper Co.	112	Juniper Ebbow Co., Inc.	219	Premier Furnace Co.	203	Wayne Home Eqt. Co.	*
Chelsea Fan & Blower Co., Inc.	*	Kaiser Aluminum & Chemical Corp.	171	Pullman Vacuum Cleaner Corp.	205	Weirton Steel Co.	*
Chevrolet Motor Div., General Motors Corp.	148	Kalamazoo Furnace & Appliance Mfg. Co.	*	Quickdraft Co., Div., Hall's Safe Co., The	182	Westinghouse Electric Corp., Sturtevant Div.	*
Cincinnati Elbow Co., The	188	Kaustine Furnace & Tank Corp.	*	Quiet Automatic Burner Corp.	211	Wheeling Corrugating Co.	*
Circulair Div., Corlett-Turner Co.	207	Kenard Corporation	134	Radiant Utilities Corp.	*	White-Rodgers Elec. Co.	*
Clarage Fan Co.	*	Kirk & Blum Mfg. Co., The	217	Randall Graphite Bearings, Inc.	191	Whitney Mfg. Co., W. A.	211
Cleveland Humidifier Co., The	*	Ko-Z-Air Products, Inc.	219	Reiner & Campbell Co., Inc.	219	Williams Metal Tool Co.	119
Cole Hot Blast Mfg. Co.	*	Krueger Sentry Gauge Co.	6	Reliable Gas Products Co.	212	Williams Division, Eureka Williams Corp.	154
Coleman Co., Inc., The	*	LaCrosse Steel Roofing & Corrugating Co.	212	Remington Arms Co., Inc.	175	Williamson Heater Co., The	154
Cole-Sewell Engineering Co.	*	Lennox Furnace Co.	130, 131	Reiner & Campbell Co., Inc.	219	Wilson, Inc., Grant	*
Combustion Div., Steel Products Engineering Co., The	*	Libbey-Owens-Ford Glass Co., Fiber Glass Div.	*	Reliable Gas Products Co.	212	Windmaster Corp.	152
Condensation Engineering Corp.	8	Libert Machine Co.	*	Remington Arms Co., Inc.	175	Wisconsin Oil Burner Co.	206
Conner Engrg. Corp.	109	Lima Register Company	157	Rever's Copper & Brass, Inc.	77	Wiss & Sons Co., J.	219
Copeland Refrigeration Corp.	109	Lincoln Electric Co., The	196	Rex Metal-Craft, Inc.	200	Wodack Electric Tool Corp.	219
Cox Mfg. Co.	111	LaCrosse Steel Roofing & Corrugating Co.	212	Reynolds Metals Co.	*	Wolf & Co., Benjamin	*
Crane Co.	156	Lennox Furnace Co.	130, 131	Reznor Mfg. Co.	185	Inside Back Cover	95
Cruscent Tool Co.	83	Libbey-Owens-Ford Glass Co., Fiber Glass Div.	*	Rheem Mfg. Co.	34	Wood Co. John	95
Crise Controls Div., Acro Mfg. Co.	*	Libert Machine Co.	*	Richmond Radiator Co.	187	Worthington Corp.	*
Crucible Steel Co. of America	83	Lima Register Company	157	Roberts-Gordon Appliance Co.	193	Wysong & Miles Co.	35
Curtis Refrigerating Machine Div. of Curtis Mfg. Co.	105	Lincoln Electric Co., The	196	Rock Island Register Co.	205	Zatko Metal Products Co.	197
Dahlstrom Machine Works, Inc.	*	LaCrosse Steel Roofing & Corrugating Co.	212	Round Oak Company	187	Zink Co., John	102
		Lima Register Company	157	Ruby Chemical Co.	218		
		Lincoln Electric Co., The	196	Ryerson & Son, Inc., Jos. T.	50		

Firms represented in this issue are identified by the folio of the page on which their advertising appears. Advertising which appears in other issues is marked with an asterisk.

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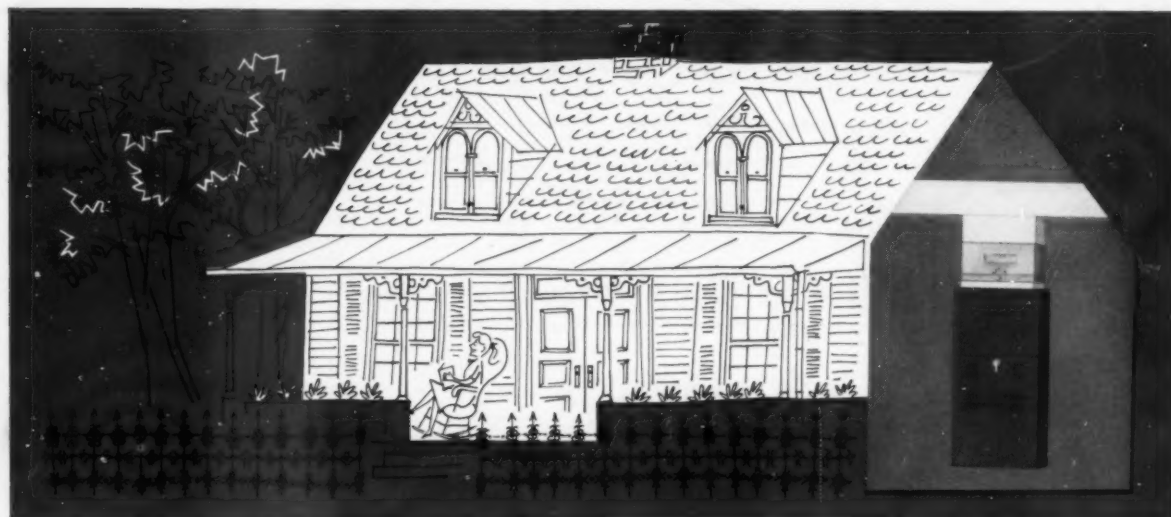
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